November 18, 1961
Vol. 161 — No. 21

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

National security and development of the nation's missile program depend much upon communications. Here SP5 John H. Raab, veteran Army non-com, checks one of the 1,000 poles in communications network at White Sands Missile Range, N. M. See page 64 for further information.

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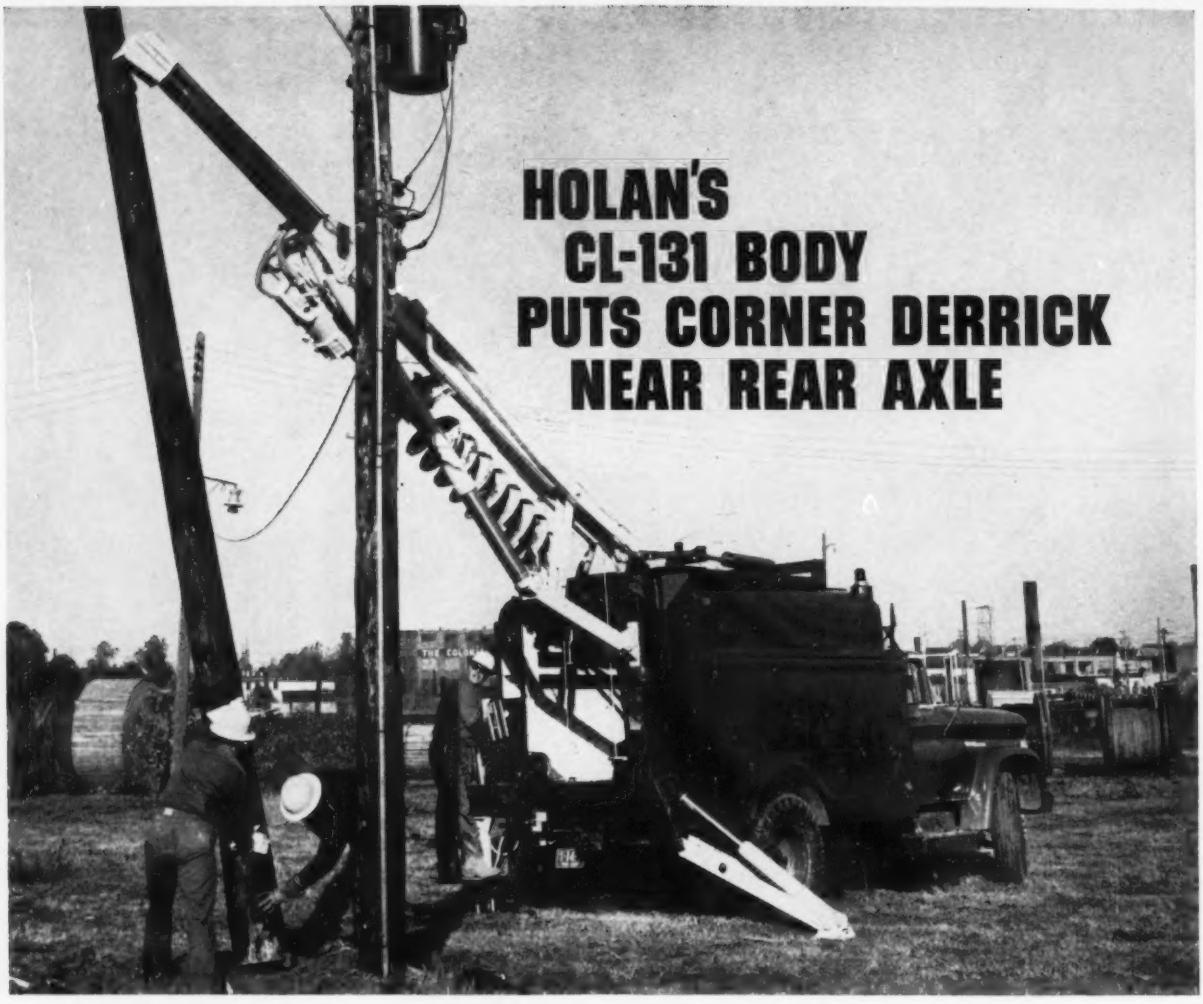

HOLAN'S CL-131 BODY PUTS CORNER DERRICK NEAR REAR AXLE

New Unit Mounts on 84" Chassis, Yet Stable Enough for Pole "Walking"

Holan's new CL-131 Body/7500 Corner Derrick Unit is a husky little heavyweight.

Short and compact, the body mounts on an 84" CA chassis — and the centerline of derrick rotation is less than 44" from the centerline of the rear axle. By "bobbing" off the rear, the center of gravity automatically shifts forward, making it possible to handle heavy derrick work with or without use of the hydraulic stabilizer jack.

In fact, long and hefty poles can be "walked" to position with the unit, set and aligned without use of pike poles.

And the compartmentation is ideal for light line construction or maintenance. On the right side, there are shelves with adjustable partitions, compartments for ropes and climber belts, a water cask, a thru box for long tools, a crosscut saw holder, and a rubber goods box in the superstructure that opens to the inside of the body.

On the left side, there is a horizontal compartment with drop doors and full-length shelf partitioned for miscellaneous equipment. And there's a left-hand lower box for heavy tools.

Here is a compact workhorse of a unit . . . one that will save time, maneuver easily and do a multitude of line construction and maintenance tasks. Call your Holan Field Representative . . . or write us today . . . for complete information.

"Walking" a pole is an easy task for Holan's CL-131/7500 Corner Derrick Unit which mounts on an 84" CA chassis.

Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

BULLETIN: EARLY TABULATIONS SHOW NEW *FLEET-SIZE* LARK HAS WON ACCEPTANCE

'62 LARK FLEET ORDERS IN FIRST 3½ WEEKS—

State of Connecticut • Railway Express Company • Avis Rent-A-Car, Miami • Winnetka, Ill. Police Dep't. • State of Florida • Yellow Cab Co., Erie, Pa. • F. W. Means & Company • University of California • Norwalk Tire Company Northern Illinois Gas Co. • Firestone Tire & Rubber Co. • City of Cleveland, Ohio • Frenat Cab Co., New York National Cash Register • Santa Clara County, Cal. • Convair Division, General Dynamics • City of Milwaukee, Wis. American Cab Co., Kansas City • State of Minnesota

HERE ARE THE REASONS WHY THE NEW FLEET-SIZE LARKS ARE GOING PLACES IN '62

- **NEW 113" WHEELBASE,** 5 inches longer than Rambler Classic, gives luxurious ride and room . . . a bigger car than any other at the same price.
- **NEW INTERIOR DIMENSIONS** provide legroom comparable to Cadillac—over 6 inches more legroom than Plymouth, over 12 inches more than Corvair Monza!
- **NEW HEADROOM** in front is 40"—a full inch higher than the Fairlane. New headroom in back is 39½"—a full inch and a half higher than the Fairlane. (When we say "room for six-footers" we **mean it.)**
- **FLEET-PROVED POWER** in lively Six or choice of two V-8's—112 to 225 HP! Five body styles to choose from, with wide choice of trim, colors and options—the widest offered by any manufacturer!
- **NEW FINE-LINE STYLING,** a longer car with smart European design, wins quick acceptance with fleet-car drivers. Glamor-styled but taxi-tough!
- **GO-ANYWHERE STAMINA,** with high ground clearance—even on off-highway trails, The Lark takes the most beating with least complaint. Heavy Duty equipment is available on every model.
- **COMPACT SIZE PRICE TAG** on the Fleet-size Lark—only the first of many savings! Lowest maintenance and repair have been proved in Lark fleets across the country, for years. Endurance-built quality keeps operational costs low...keeps trade-in value right up among the top few makes!

new **'62 LARK**

BY STUDEBAKER

GET THIS VALUABLE INFORMATION RIGHT NOW!
Send me all the data on the '62 Fleet-size LARK.

Name_____

Title_____

Company_____

Address_____

T-11-62-2

City_____ Zone_____ State_____

Mail to: A. E. Fitzpatrick, Studebaker Fleet Department, South Bend, Indiana.

FLASHES AND PLUGS

SHAGGY MOUSE STORY. The problem of how to sober up an inebriate is one which has been faced many times.

However, although advice has been given on how to handle souses of the human species, what does one do with a drunken mouse?

This problem might seem too remote to even contemplate, except that a case history was reported recently in "Long Lines," the employe magazine of the American Telephone & Telegraph Co.

It seems that an adventurous mouse had been romping along a housewife's pantry shelf and being somewhat clumsy had knocked over, and spilt, a bottle of cooking sherry.

Not knowing that this sherry was fit only to be put into a pot and shouldn't be used to get potted, Mr. Mouse lapped up quite a bit.

In the morning, he was discovered by the lady of the house sound asleep, gently breathing, and completely crocked.

His hostess, who finds all mice, drunk or sober, distasteful called her husband for advice.

He suggested that she "let him sleep it off."

Finding no help from that quarter, the housewife had to improvise. She clapped a jar over the carouser and gingerly slipped an envelope under both mouse and tumbler.

Carrying this homemade stretcher to the backyard, she dumped the mouse on the ground.

The fresh air proved to be just what the doctor ordered. Mr. Mouse rose, and staggered off, it is hoped, for the nearest branch of Alcoholics Anony-mouse.

•

TELEPHONE LEAPS OVER THE WALL. A recent telephone experience afforded to a Berliner living now in New York City points up the joys inherent in freedom of communications channels, and the contrast between these freedoms in the U.S. and in East Berlin.

In New York, the native of Berlin took up the receiver and asked for a West Berlin number. Before Berlin answered, the New York Telephone Co. operator interjected sympathetically with, "Berlin! Oh, I wonder how it's going over there!"

Forgetting formality in her concern, she explained to the man waiting for his connection that her boy friend had come to New York from Berlin, and his family was in East Berlin . . . Then, the call went through.

An hour later, the Berliner in New York received a telephone call from a stranger with a strong German accent, who introduced himself as the operator's friend. The stranger explained that he longed for more personal news of his home town than could be found in the U.S. papers. He said his family, in the Soviet Sector of Berlin, did not dare write openly to him in New York.

Thus, it came about that the man who had telephoned West Berlin an hour before was able to share with the other Berliner what news he could, and to supplement it with the uncensored information he had gained from his own relations in West Berlin.

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

November 18, 1961

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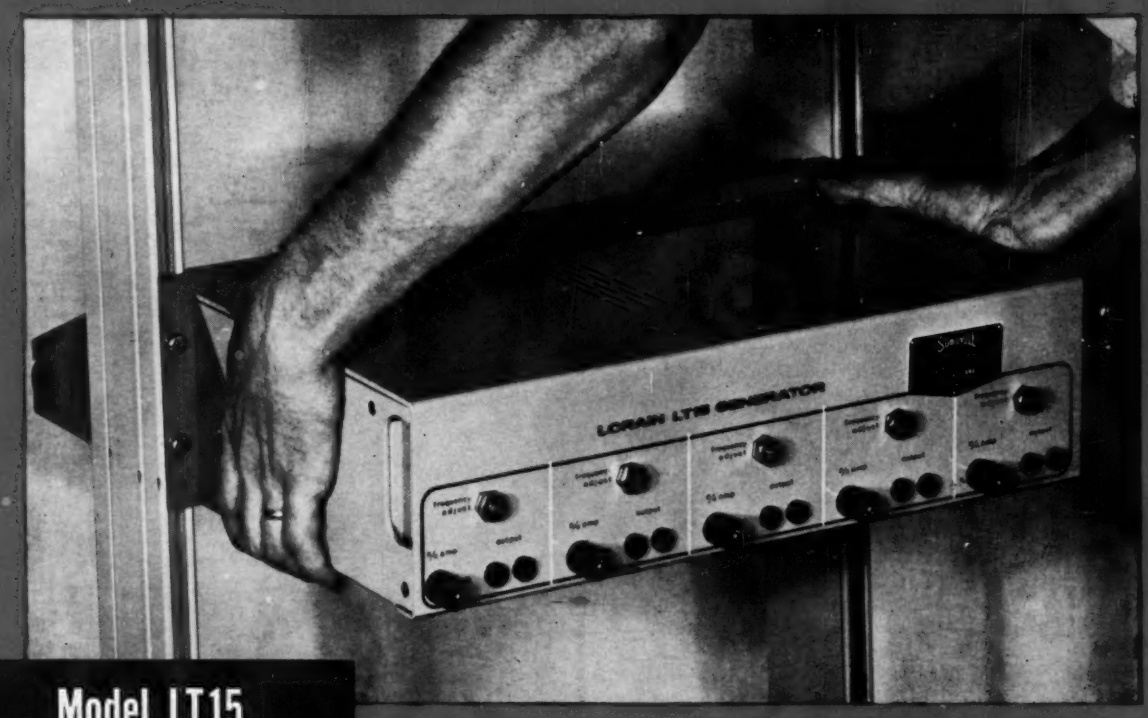

Model LT15 SUB-CYCLE Transistor 5-Frequency Ringing Generator

...NEW by LORAIN

Now, for the first time, a d-c operated, transistor ringing generator having the Lorain deluxe features and yet priced to fit the budget of the smallest exchange. The new LT15 SUB-CYCLE ringing generator, having an output of 15 watts, will handle up to about 2,000 lines. The units may be paralleled to accommodate expansion of facilities.

QUALITY FEATURES

Sine-Wave Output—Avoids cross-ring and assures quiet circuits.

Self-protected against overload, short circuit, trip battery short or cross connection of generators.

Precision frequency adjustment.

Modulated audible ring-back tone—Available separately or may be superimposed on the ringing voltage.

Essentially flat regulation from no load to full load.

ECONOMICAL

Low Initial Expense—Fast, easy installation and low capital investment.

Maintenance Free—Reliable transistor circuits—no moving parts.

Input—Low input current both at full load and at no load from 48 volt office battery.

COMPACT

Weight—Only 45 pounds.

Space—Occupies only 5¼″ of vertical rack space in a 19″ relay rack.

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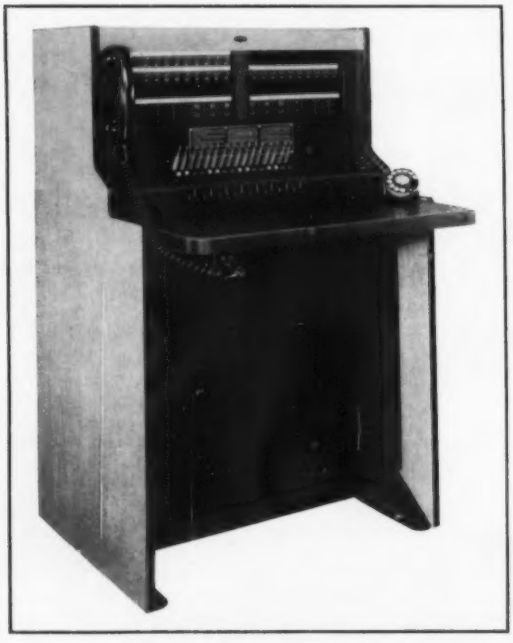
LORAIN PRODUCTS (CANADA) LTD.—ST. THOMAS, ONTARIO

DESIGNERS AND MANUFACTURERS
SUB-CYCLE® CONVERTERS
FLOTROL® RECTIFIERS
PARTNERS IN DEPENDABILITY

Expand in A Jiffy

With Leich's L55 PBX, you jack-in cord circuits, central office trunks, and operator's circuit.



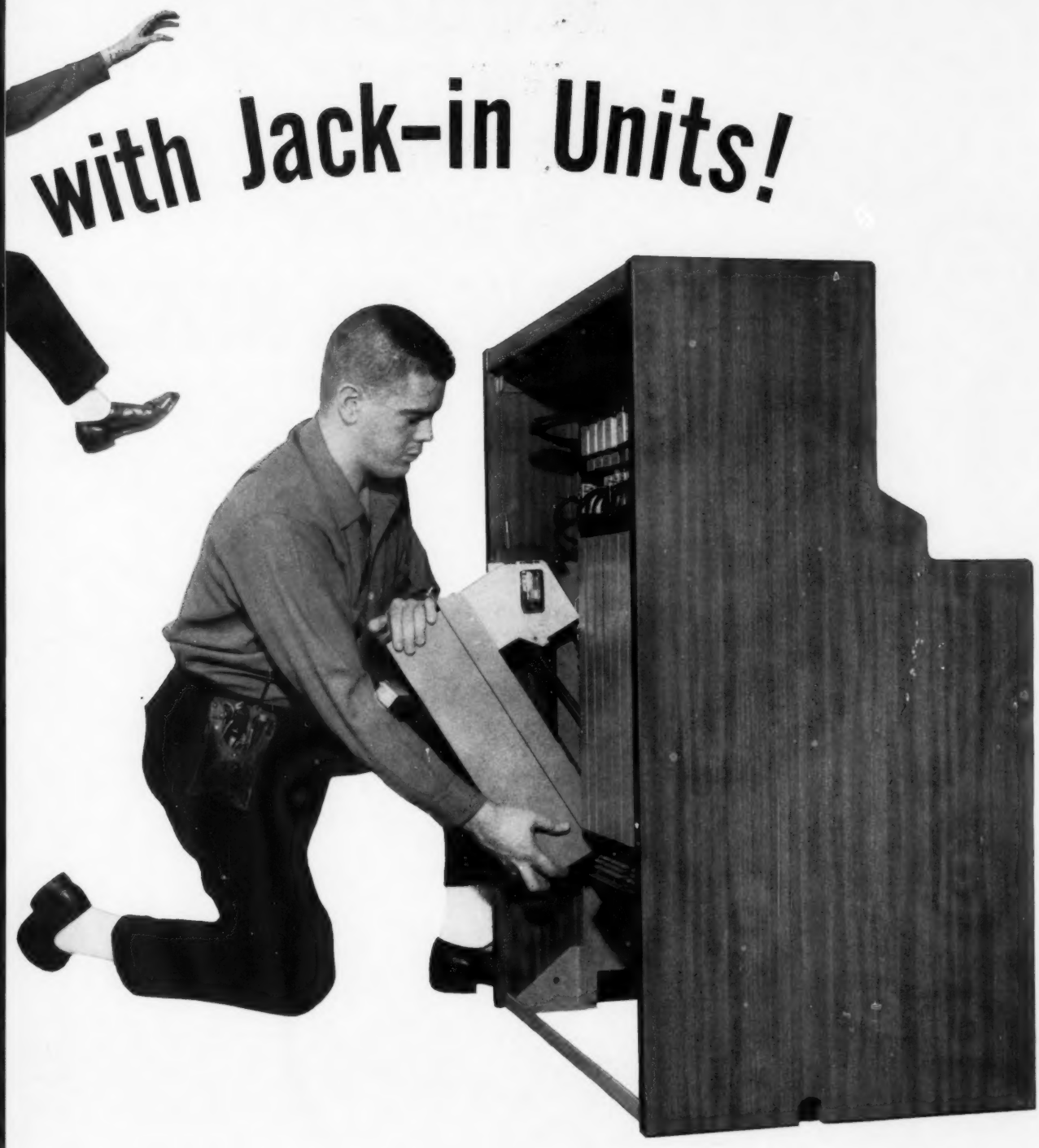
Easy, easy, easy! Leich's L55 PBX features jack-in circuit units to let you add, remove, or service equipment in jig time. Your service people can get right to the point. They're in and out in minutes, saving everyone's time and money including the subscriber.

Cord circuits, operator's circuit and central office trunks are jack-in type, as well as conference and tie trunk units. This makes servicing the board easier and faster too. It's an ideal setup for the customer who needs more circuits in a hurry.

Everything is nimble, quick and efficient with Leich's L55 PBX. Write for the L55 circular today.

LEICH GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

with Jack-in Units!



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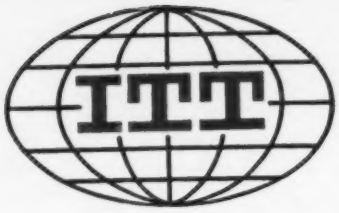

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KELLOGG
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is ready
to show you*
THE ALL-NEW

SELL-A-PHONE

PROMOTIONAL
PROGRAMS

a merchandising first
for <u>your</u> independent
telephone company

EVERYTHING TO SELL MORE HOME TELEPHONE SERVICES

...both to subscribers and non-subscribers

3 complete sales plans:

Complete with all the advertising and sales promotion material necessary to make them successful . . . with little effort on your part!

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...for every size, every kind of business

the first truly portable key-phone demonstration kit...

. . . plus all the material

- to get inquiries
- to follow through
- to quote on installations
- to train your salesmen

**Your local representative will be in soon to give you the whole story!*

ITT KELLOGG

A Division of
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6650 South Cicero Avenue, Chicago 38, Illinois

Area Codes

Magic numbers for the telephone industry

Operating economy for you. Convenience for your customers. With Area Codes, and the more recent development of All-Number Calling, every telephone company will be able to expand to meet the soaring demands for new service in the coming years.

But, as with any change in service as dramatic as this, customers need to be told about Area Codes and encouraged to use them.

The Bell System advertisement across the page will help do this. It is appearing right now in magazines that reach nearly every customer in America.

Of course, one advertisement is just a starting point. To gain the greatest profit from Area Codes you must promote them heavily to your customers.

Many Independent and Bell System companies are doing this in these four ways:

1. Educating customers on the benefits of Area Codes in print and broadcast advertising.
2. Giving customers Area Code stickers for their telephones.
3. Making Area Codes of distant points easily available to customers.
4. Encouraging customers to tell the Long Distance Operator the Area Code of distant points they wish to call.

Promotion like this will pay off for your company, too.

BELL
TELEPHONE
SYSTEM

New for you—a more useful telephone number!

You may already have a telephone number like this. If you don't, here's how it will look.

The first three digits are your Area Code. They tell the telephone system what part of the country you live in. The next three digits designate your particular telephone office, and the last four pinpoint your particular phone.

It's *your* phone number. Unique. Not another like it anywhere.

This new kind of number helps others reach you—and helps you reach others—faster.

Area Codes here now—
All-Number Calling on the rise

Today the majority of our customers already dial their Long Distance calls directly by means of Area Codes. Eventually everyone will be able to. Until then, if you call through the Operator, you can save time by giving her the Area Code of the telephone you are calling when it is different from yours.

And already, in many parts of the country, letters have been replaced by numerals in telephone numbers. Before this change, we were running out of usable telephone numbers containing letters, while phones were steadily increasing. All-Number Calling, however, will give us enough numbers to meet our needs into the next century.

Telephone progress like this benefits everyone. Your new personal telephone number is another step in our effort to anticipate the needs of a growing America.

BELL TELEPHONE SYSTEM

All-Number Calling may permit you to use simple, tiny number-buttons on portable phones of the future.

SILENCE ECHO WITH QUALPETH Keep echo, or "hollow barrel effect," out of your cable circuits. Let QUALPETH carry the conversation undistorted! It's because QUALPETH's unique manufacturing process leaves it dramatically free from electrical mismatches that can cause reflections. ☐ QUALPETH is available for aerial, duct or direct earth burial service...in up to 900 guaranteed pairs...and in guaranteed lengths, a QUALPETH exclusive. Identification is fast and easy with QUALPETH's brightly-colored polyethylene insulation and unit binder tapes. ☐ For any outside plant use—get QUALPETH, today's standard of quality. For details, see your distributor, or write General Cable Corp., 730 Third Avenue, New York 17, N. Y. ☐ Distributed by: Automatic Electric Sales Corp., Northlake, Ill.; Leich Sales Corp., 427 W. Randolph St., Chicago 6, Ill.

GCC
GENERAL CABLE CORPORATION

VENDING COMPANIES depend on telephone answering sets

"Now, for a few pennies a day... the 'Secretary' takes calls in our absence"

JOHN M. BUENZLI, ***Prairie Bottling & Vending Company, Prairie du Chien, Wisconsin***

In a letter to the telephone company, Mr. Buenzli states: "In our bottling and vending business, we have many orders and service calls. Before we had an ELECTRONIC SECRETARY installed, someone had to stay here to answer the phone. Now we can leave whenever we choose, and upon our return, take care of the recorded messages received during our absence."

If your business is bottling, vending or any other type of sales and service, you are very likely experiencing a problem similar to Mr. Buenzli's. Perhaps you can solve it the same way he did.

An ELECTRONIC SECRETARY answering set will answer your phone twenty-four hours a day, seven days a week, if you like, with an announcement message that YOU have recorded. It will take the incoming messages (as they are given), eliminating the human element factors of errors and days off. And . . . as Mr. Buenzli says, all this "for just a few pennies a day."

Ask your telephone company for complete details

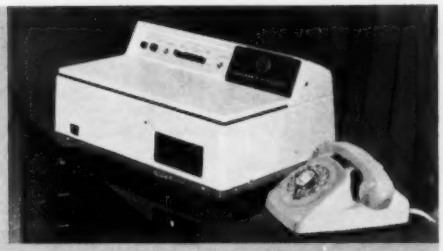
ELECTRONIC SECRETARY®

Telephones
+ ELECTRONIC SECRETARY sets
add up to More Revenue for YOU

In the bottling and vending business, as in other services, the telephone is a very important tool. A phone call is an order for a new machine, or a couple of cases of soft drinks, or perhaps . . . an interested prospect. By the same token, the loss of a phone call might mean the loss of a customer.

Mr. Buenzli closes his letter with the following statement: "Thank you for providing this service to enable us to serve our customers better." By installing an Electronic Secretary set for a business subscriber, you are not only increasing your revenue via installation charges and monthly rental, but you are also providing him with the maximum in telephone service.

A proof of the opposite page is being mailed to you. Show it to bottling and vending companies as well as other service-type businessmen in your area.



LONG PLAY MODEL

Designed primarily for the company receiving a large number of calls or messages of great length. Answers the phone with an announcement message and receives up to two hours of incoming messages.

SHORT PLAY MODEL

Especially good for the smaller business. Performs the same functions as the Long Play Model but has a more limited capacity.

ANSWER ONLY MODEL

For those who want the advantages of automatic answering but do not need the incoming messages recorded.

Electronic Secretary Industries, Inc., Subsidiary of GENERAL TELEPHONE & ELECTRONICS

distributed by

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400 North Wolf Road Northlake, Illinois

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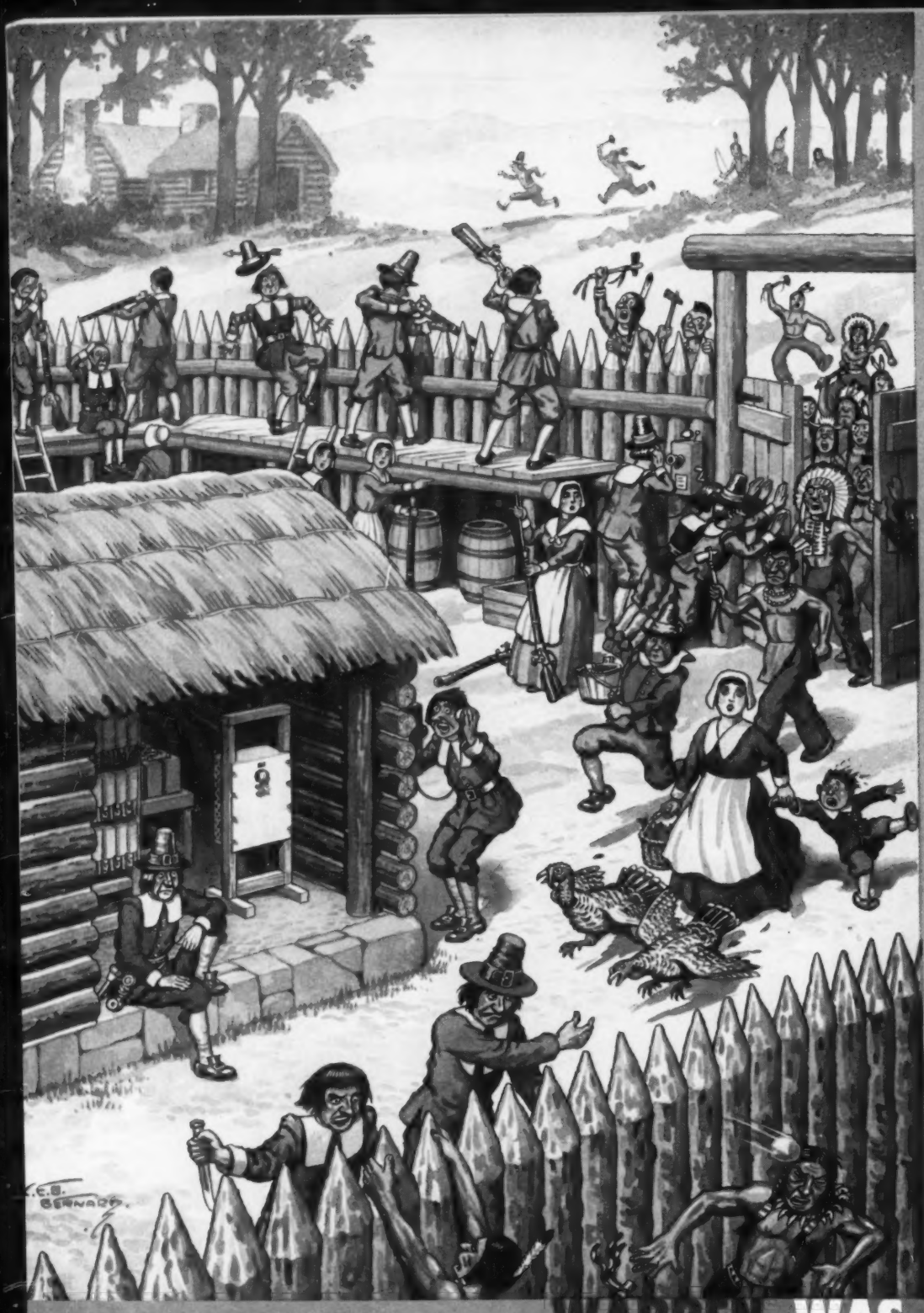


NO. 10 OF A SERIES

* According to our artist, there were unexpected guests at the first Thanksgiving. They wore feathers in their caps and carried their own carving utensils. They burst in on the Pilgrims with fierce, rude yells (even as your neighbors — and ours) without even having had the decency to phone ahead.

Which brings us to the commercial — and incidentally, to what we consider, most distinctly, a feather in our cap.

We mean the Warren Transistor Power Pack — a complete, transistorized power, ringing and tone supply for which full many a PBX, PAX, and PABX installation would be justified in giving thanks.

Why?

Because a Warren Transistor Power Pack refuses to age. There is no maintenance problem . . .

Because no standby equipment is needed where batteries are used in PBX (both ringing and tone generators are dc operated) . . .

Because initial cost is lower than the cost of buying individual components separately . . .

Because this unit packs more power (up to 20 amps) in less space than any other power pack available . . .

Because Warren offers a complete line to suit every requirement, including seven 24-volt models and seven 48-volt models, none of which look much like the one in the drawing. (We've corrected the situation below.)

Please write for complete information.

WARREN PRODUCTS.....

TYPE TFR — Transistor Float Rectifiers
TYPE TPP — Transistor Power Packs
TYPE TMR — Transistor Ringing Generators (25 & 50 Watt)
TYPE TRT — Transistor Ring Talk Power Supplies
TYPE TTG — Transistor Tone Generators
TRANSISTOR TONE LINK EQUIPMENT

FOR REPRINTS OF
THE SERIES WRITE
WARREN MANUFACTURING CO.

WARREN
MANUFACTURING COMPANY
Littleton, Massachusetts
Tel. HUnter 6-3511

WARREN MANUFACTURING WM

JUST FOR THE RECORD..... **WARREN WAS FIRST WITH A COMPLETE LINE OF TRANSISTORIZED POWER PACKS* FOR THE TELEPHONE INDUSTRY**

(AND WITH SILICON RECTIFIERS, YET!)

FIRST IN TRANSISTOR PRODUCTS FOR THE TELEPHONE INDUSTRY

This is what a 48 TPP 20 48 volt, 20 Amp Transistor Power Pack really looks like.

IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

Senator Long and his Small Business Sub-Committee staff economist take leading roles in effort to scuttle private ownership of satellite communications espoused by Kennedy administration . . . . Industry faced with pressure from the left for government ownership of space system.

SEN. RUSSELL B. LONG, outspoken foe of the private enterprise approach to space satellite communications, opened the hearings of his Small Business Sub-committee on Nov. 8 and took a long stride forward in his efforts to scuttle the recommendations of the FCC-appointed *ad hoc* committee (composed of the various international carriers involved, including AT&T). Don't be too surprised if the Kennedy administration modifies its earlier plans for private ownership of the system.

The industry has, so far, been unable to combat the pressure from the left to revise the all private-ownership setup—which the Kennedy administration espoused last July. But, that remains to be seen.

Your Washington columnist comes to this prediction from the following observations:

(1) FCC Chairman Newton Minow said his agency has not yet decided whether the system should be turned over to international carriers, to some new group which would compete with these firms, or whether it will be placed under government ownership.

(2) Lee Loevinger, head of the Department of Justice's Anti-Trust Division, testified that the administration is not satisfied with the *ad hoc* committee's proposals. He said his department had not taken a stand on the plan's details but, in general, the plan was not adequate to meet the requirements set by President Kennedy and the Justice Department.

(3) Dr. E. C. Welsh, executive secretary of the National Aeronautics and Space Council (which originally recommended the private enterprise approach) said that his organization was still evaluating the *ad hoc* committee's proposals and the results of this study will presumably take the form of a recommendation to the President. The implication which this observer got, reading between the lines of Dr. Welch's comments, was that the council will have some second thoughts about the *ad hoc* committee's plans.

The government's top trust-buster Lee Loevinger, long a foe of the *ad hoc* committee, told the sub-committee that the dissatisfaction with the proposal was based "mostly on its generalities and omissions." He said the plan was "too general to be put into effect without considerably greater specification."

Senator Long, in quizzing Loevinger, observed that the communications industry should not be allowed to "charge off" possible losses on space communications in their regular rate systems. He hammered away at this theme repeatedly throughout the hearings. Drawing on the kind of specious logic which sounds good to the voters, the Louisiana solon said that the taxpayers had paid for U. S. satellite advances so far and should be able to look forward to lower rates when space communications become commercially feasible. He made no reference to the considerable amount of industry-sponsored research which has been conducted in the space communications field.

Loevinger referred to the industry plan as a useful attempt to get private business support for a space communications system, but he said it would have to be considered on the "highest policy-making levels."

Long dragged out his familiar spectre of the AT&T domination. He expressed his fears that the proposed system would give Bell a monopolistic control since the company would put up 80 per cent of the private funds to finance the program. He side-stepped the committee's recommendation for two directors from each participating company, regardless of financial participation, who would run the non-profit company. He said that the industry report apparently calls for including the cost of the space system in the present rate bases of the participating companies.

He made no reference to the fact that the responsibility for this is already entirely in the hands of the federal and state regulatory commissions, at their respective levels of rate making authority. He said Bell "can charge this off to long distance telephone rates—whether the project succeeded or failed." This, of course, is for the FCC to decide—not Senator Long nor the AT&T.

Loevinger, however, nodded in agreement and said that this was one of the "problems involved" that his department would like to study further.

The first witness after lunch on the first day of hearings was Dr. E. C. Welsh, executive secretary of the National Aeronautics and Space Council. His remarks are more interesting for what he almost said, rather than for what he actually said. At one point in his prepared statement he commented:

"The *ad hoc* committee has submitted a proposal, which its authors indicate to be in accordance with the President's policy. I am sure, however, that we all recognize that such a proposal is not the only method which might be considered for organizing the communications satellite industry, and that other alternatives would also be

judged against the public interest policy requirements. I might add that, in my judgment, it was both reasonable and useful to have given an industry group such an opportunity to make recommendations. As I have said, we are studying this proposal—not only to see what it means, but also to see what it offers and what it lacks.

"Consequently, at this stage of our analysis, only a few generalizations seem appropriate:

"(1) While time is needed to see that the best organizational structure is evolved, this should not cause any delays in the essential research and development steps leading to technical competence for an operational system.

"(2) It is significant that the private companies, which produced the *ad hoc* committee report, recognized that government regulation alone would be insufficient and hence recommended that there also should be U. S. Government representation on their proposed Communication Satellite Corp. board.

"(3) Those who previously had stated that they could have a communications satellite system in operation in a very short time, if the U. S. Government would let them, either have modified their view or are not numbered among the signers of the *ad hoc* committee's report.

"(4) The concentration of economic power, which now exists in our communications business, should not be enhanced by the introduction of communications satellites. On the other hand, it does not seem reasonable to expect that the existing problems characteristic of economic concentration will be solved in the process of organizing a communications satellite corporation."

Welsh also strummed a chord close to Senator Long's heart when he explained by way of digression a new patent policy which had been worked out. As readers of this department may recall, Senator Long introduced a bill at the last session of Congress which would require the federal government to take title to all patents developed as a by-product of government-financed research and development contracts. (See *In The Nation's Capital*, June 10, 1961 issue, for an appraisal of this legislative proposal.)

Welsh said:

"I would like to take this occasion to mention a recent accomplishment, obtained with the assistance of the Space Council staff. There have existed somewhat different practices, procedures and policies on the part of the Department of Defense and NASA in dealing with inventions arising from private industry-government contracts. We undertook to bring a greater degree of consistency into the patent language of those federal contracts which deal with space matters.

"After meetings with my staff and patent authorities from other agencies, the Department of Defense agreed to revise existing communications satellite contracts with the following language:

" 'In addition to the above-mentioned license to the government, the contractor does hereby grant to the government the right to grant sublicenses to others, under such terms and conditions as may be prescribed, for the practice of any subject invention throughout the world in the design, development, manufacture, operation, maintenance and testing of communications satellite systems, and of equipment, components, ground tracking, transmitting and receiving facilities therefor.'

"Further, the Department of Defense has advised that such language will be included in all future contracts covering research and development in any field related to space, including space exploration and space communication.

"This action is, I believe, constructive progress and should contribute to the protection of the public interest in cases where Government funds are involved."

With a frankness unusual for such appearances, Welsh concluded his prepared statement by adding, "The last statement is sort of a self-serving statement."

Senator Long said he thought the word "sale" should be added to the above patent policy statement so the sub-licensee could "manufacture and *sell*."

The question and answer session elicited an opinion by Welsh that within the next 12 months four different types of experimental communications satellites will be in orbit.

The following exchange between Long and Welsh gives an ominous inkling of things to come:

Sen. Long: Dr. Welsh, from your statement, in Point 4, it would indicate that you do not deem it desirable that there should be any further economic concentration in the organization of the communications industry. Would that be a correct statement?

Dr. Welsh: That would not only be a correct statement, but I would say that if it won't in any way impair service, I would like to have less concentration of economic power.

Then at the conclusion of Welsh's testimony:

Sen. Long: You recognize, do you not, that in the operation of this communication satellite, and I particularly have in mind the more advanced stages of a communications satellite such as the Syncom Satellite, that there will be a great number of foreign policy matters involved where the government must necessarily be in a position to protect the national interests.

Dr. Welsh: Not only recognize that, but that is in the policy statement as one of the requirements and responsibilities of the government—to see to it that it does control, supervise and handle agreements and negotiations, and that sort of thing with other governments.

Sen. Long: For example, we would hope to achieve pre-eminence in broadcasts from this satellite at the earliest practicable date of a signal that could be heard at, maybe—well, around about half the world; perhaps around the whole world.

Dr. Welsh: Certainly.

Sen Long: And, so, both from a matter of broadcasting at an early date, the most efficient operation, and from the point of view of what is to be broadcast and how it is to be done, there are a great number of policy—foreign policy—considerations.

Dr. Welsh: And which our government has a basic interest in.

Sen. Long: And which, above all, must not leave the government naked and unarmed, you might say, to protect its own interests.

Dr. Welsh: I certainly agree with you.

Sen. Long: "There are also matters involved in the negotiation of treaties, in the allocation of wave lengths between this nation and other nations where this nation also has a very compelling interest."

Dr. Welsh: This is certainly correct, Sir.

In answering a question at one point Dr. Welsh discussed the alternatives to the *ad hoc* committee's plan:

"Instead of a non-profit it could be a profit corporation. Instead of owning neither satellites nor ground stations it could own either or both, or other facilities. Instead of having it financed largely by one company, it could be financed by several companies or not be financed by some companies at all, but be financed by public sale of securities. The ownership by international carriers only, it could be; it could have ownership by companies that were not international carriers; and, of course, instead of having minority government ownership—I mean representation on the board—it could have no government representation on the board or majority representation, and so forth."

Joining Senator Long in grilling the witnesses was Benjamin Gordon, a shrewd, articulate sub-committee staff economist. Long and Gordon made things pretty difficult for Omar Crook, chairman of the *ad hoc* committee.

Senator Long asked how the costs would be recouped by the companies and whether or not the companies would include these costs in their rate bases.

Mr. Crook: There is no question but what any part of an operable satellite system should be a part of the rate base.

Now, I think there is some question about how you would handle the initial failures that you have been discussing. I would not like to say they would be handled one way or the other. I think you would have to convince your regulatory agency that they should be handled one way or the other.

Sen. Long. "I am a little dismayed that as chairman of this committee, and as an executive of one of these major common carriers, that you would not have an opinion on how that is to be handled or how that should be handled. . . .

Mr. Crook: Well, my understanding is, Senator Long, and again I am not an engineer, please, sir, but my understanding . . . .

Sen. Long: You know the economics of your industry, I would assume.

Mr. Crook: "Well, this is . . . ."

Sen. Long: Yes?

Mr. Crook: My understanding is that it is proposed that all launchings will be done under the auspices of the United States Government through NASA, but that the costs of such launchings will be paid by the satellite corporation and, of course, that amount of money will go into the rate base, that is correct.

And a bit later:

Mr. Crook: Yes. In all frankness, I think what you ought to have is really a rate expert to indicate which way he thinks is appropriate to put these things on your books. . . .

Mr. Crook: . . . . Now may I make one correction to a statement you made a minute ago? I am not an executive of the Hawaiian Telephone Co. I am simply its local attorney.

Sen. Long: That is, you represented the company in rate cases?

Mr. Crook: I have represented companies in rate cases, yes.

Sen. Long: Well, then, the fact that you are not an executive in a company still should not disqualify you from being permitted to answer the question. . . .

Mr. Crook: I will do my very best. . . .

Mr. Gordon: Well, let me ask this, Mr. Crook. Under your proposals, couldn't the FCC or even the GSA perform the same functions as the satellite corporation?

Mr. Crook: I suppose any entity could, Mr. Gordon. . . .

Mr. Gordon: In the President's policy statement of July 24, 1961, the President outlines the responsibility of the U. S. Government, and he says one of the responsibilities is 'to conduct or maintain supervision of inter-nation agreements and negotiations.'

Now, it seems to me that the most significant functions are being conducted by the government. One is in the launching, where 80 per cent of the cost is involved. Negotiating—either in the conducting of negotiations or maintaining supervision. In the allocating of frequencies, in regulating.

So I am just wondering why the FCC couldn't, or the GSA—the GSA handles all government buildings and government property—I am just wondering why one of these two agencies could not handle these functions as far as contracting with, say, NASA, as far as conducting foreign negotiations. In other words, it sounds to me as if a good many of these functions, practically all of them, could be performed very competently by the FCC, and it would eliminate many of these perhaps anti-trust problems that we were talking about this morning.

Mr. Crook: Well, if that were to happen, Mr. Gordon, it seems to me than you would have an organization which is contrary, as I understand it, to the President's policy, that advocates private ownership of the satellite system.

Mr. Gordon: Well, it says that he favors it if certain policy requirements are met. And as were discussed this morning, certain policy requirements have not been met. And perhaps they can't be met. I just don't know. But I just throw that out for your consideration. . . .

Mr. Gordon: Let me read you a quotation from an article by Roger Blough from the September issue of *Reader's Digest.*

'In our free society, the one great motivating force is the incentive we call profit. It is profit and the expectation of profit that distinguishes our mode of production and our manner of living. It is the tonic and energizer of our economic life-stream.'

Do you agree with this statement?

Mr. Crook: Yes.

Mr. Gordon: What, then, is the reason for making the satellite corporation a non-profit corporation? Isn't this contrary to the philosophy of the free enterprise system. . . .

Mr. Crook: The proposal as contained in this report is that the carriers would earn a fair return on their investment. And the non-profit satellite corporation was set up in an effort to comply fully with the ground rules that were laid down by the President and by the FCC.

Mr. Gordon: So actually what you are saying is that the profits will be made in another part of the system, rather than—but profits will be made, of course.

Mr. Crook: It is hoped—let us put it this way—that eventually there will be a profitable—that the operation—there will be an operable satellite system that will be profitable, yes surely.

Mr. Gordon: When you talk about a nonprofit corporation, it does sound kind of misleading. . . .

Sen. Long: Well, personally, it makes just as much sense to me to let the government bear the brunt until we see if we can get one up there, and if we can get one up there, let you buy it when it is up there—than to advance the money without knowing whether a thing is going to work or not, and then have it made a part of the rate base, to be paid for if you don't have anything up there. If you can't put the thing into orbit, or make it work, I don't see any particular reason that that should be a part of your rate base, do you?

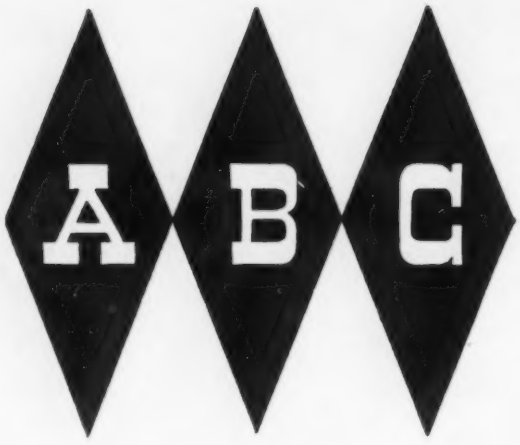
At the conclusion of the eighth day of testimony before his committee—six in August and two last week—Chairman Long of the Senate Small Business Committee's Monopoly Subcommittee said that he "wanted to think about the statements that had been received, before arriving at any definite recommendation to be made to the sub-committee or full committee."

Senator Long did say he felt "there is any number of major American corporations, which would present proposals on how to set up a satellite communications system if permitted to do so, but these corporations have done nothing about it because of a feeling of futility." He said these companies feel "there is no hope for them in suggesting a way of owning and operating the space communications system."

Senator Long suggested also there might be some economic pressure that "is being brought to bear on some of the companies that would compete with the international common carriers in taking charge of this new technology."

The Louisiana senator expressed the hope that his hearings "would prompt other companies to come forward with proposals to the Federal Communications Commission on how to establish a space communications system." He stressed that "only through effective competition could the people be benefited" and that, in his opinion, "the report of a special committee of international common carriers does not benefit the people." "In fact," accord-

(Continued on page 68)



of the Telephone

by Frank E. Lee

PART 101. THE TELEPHONE FLEET. Section 4. Economy Maintenance Program—Checking Fuel-air Mixture.

Section 3. Diesel Economy May be Added to the Telephone Fleet (TELEPHONY, Aug. 26).

Section 2. Good Management Pays Off in Better Fleet Service (TELEPHONY, Apr. 29).

Section 1. A Vital Link in a Good Communications System (TELEPHONY, Apr. 22).

AN OUTSTANDING example of inefficient operation is the leaking faucet and the amount of water wasted during the course of a day. Another example of waste is the light bulb that is left burning when no longer needed.

Stopping waste caused by a leaking faucet generally requires only a little maintenance effort. The light bulb has only to be turned off when not in use. But how about waste in operation of cars and trucks in the telephone fleet?

How many are leaking faucets—doing a job, but not doing the most economical job?

- How many are using too much gasoline?
- What kind of performance are they giving?
- What is the contact angle adjustment of the distributors?
- When were the spark plugs last checked?

These are only a few of the questions a person would want answered in checking the operation of the telephone fleet. The important point is that when the various items of economy maintenance service are overlooked, or bypassed, operating costs increase.

One of the most thought-provoking facts about automotive fleet operation is that economy, performance, and long trouble-free life go hand-in-hand. In a nutshell, achieving this desirable combination should be the number one objective in the operation of the telephone fleet.

Here's how economy, performance, and trouble-free life go together:

- To operate economically, an automotive engine must be adjusted in accordance with the manufacturer's specifications.
- The manufacturer's specifications must also be followed if the engine is to deliver peak performance. In this instance, peak performance is based on the expectations of the engine as built for normal commercial use. As hot-rod enthusiasts know, practically any engine can be souped up beyond normal expectations by applying special components; by increasing the compression ratio, and by making certain mechanical re-arrangements. However, these procedures are not recommended for telephone fleet vehicle engines.
- An engine maintained in accordance with the manufacturer's specifications is bound to have a longer life of efficient service than an engine subjected to more-or-less slipshod service.

Maintenance Pays Dividends

Economy maintenance can pay good dividends by cutting the cost of operating the telephone fleet. There's no reason to wait for a complete overhaul to make a few minor adjustments to keep any fleet vehicle operating most economically.

The little extra gas used every day on every trip—and showing up on the miles per gallon data—is money that can just as well be saved. Wheels out-of-line, or out of balance, will pound dollars off the profit sheet every day. A hard-to-start engine takes a lot of life out of a battery and wears out a starter prematurely.

These are only a few examples of how the absence of an economy maintenance program will waste money and reduce operating profit. Here is an example of the possible benefits from an alert economy maintenance program:

A medium size tractor unit was averaging 9.2 miles per gallon on a material delivery run that totalled 2,000 miles per week. At this mileage, the engine was using 217.4 gallons of gasoline costing 32.9 cents per gallon, or $71.52 per week.

After a routine economy maintenance service inspection, involving minor repairs to the ignition system and carburetor which cost $4.60 for parts and $7.80 for 1½ hours in labor charges, the truck averaged 11.6 miles per gallon over the same run.

This increase of only 2.4 miles per gallon, spread over 2,000 miles of operation, meant a savings of 45 gallons of gasoline, or $14.80 per week on fuel alone. Remember, this is the savings each week from a single fleet unit at a cost of $12.40. This represents a return of over 19 per cent in a single week on the cost of the maintenance. Over a period of five weeks the returns would be more than 500 per cent. This is good business in any phase of company operation.

Examples such as this are definite indications that there is a place in the operation of every telephone fleet for economy maintenance.

What is economy maintenance?

Economy maintenance is mainte-

nance aimed at the readjustment of vital engine components to save money on day-to-day fleet operations.

In general, economy maintenance involves simple tests, inspections and adjustments, and if necessary, the replacement of various unit parts and assemblies. These jobs require a certain degree of skill, both in interpreting the results of tests and in taking the proper corrective action when discrepancies are located. This means that the fleet maintenance staff must be able to determine when an engine is falling away from peak performance.

The results from a program of economy maintenance will not be spectacular reductions in operating costs week after week. The results may be quite spectacular immediately after the program gets under way if economy maintenance had previously been overlooked or forgotten. However, after six or eight weeks of proper maintenance effort, the results may be measured by the success in keeping the fleet at peak operating efficiency. The most satisfactory procedure is to measure results on a performance basis, such as miles per gallon, cost per mile, or cost per 1,000 miles. The program will be a successful paying proposition if the results are coming near the predetermined performance requirements.

Maintenance Procedures

An engine will not operate at top efficiency unless care is taken to make sure the various parts and components are properly adjusted. This eliminates any guesswork, or adjustments by feel or by ear. Instead, correct procedures are based on:

- Making tests with reliable testing equipment, similar to the engine test unit illustrated in *Fig. 1*.
- Comparing the results with correct standards.
- Making adjustments and replacing worn parts as required.
- Retesting following repairs or replacements to be sure that trouble conditions have been corrected.

There are three basic factors in the operation of any gasoline engine:

(1) Correct mixture of fuel and air.
(2) Proper compression.
(3) Adequate spark applied at the right time.

The efficiency of an engine is determined by the degree of accuracy attained in providing these three elements. Thus, all three factors—fuel, compression, and spark—are important in an economy maintenance program. The three factors are of equal importance in a good program. As with the legs of a three-legged stool, each one without the others serves no useful purpose. However, the three factors can be most clearly presented by discussing each one separately.

Fig. 1

Fuel System Maintenance

"Is the engine getting the right amount of fuel?" This is the first question to be answered on the subject of the correct fuel and air mixture for the engine. The fuel pump should be checked to be sure that the correct amount of fuel is being supplied to the engine.

Oddly enough, fuel pump trouble may be one of two conditions. Either the fuel pump is furnishing too little fuel, or, more rarely, is furnishing too much fuel. With too little fuel the engine may run but will cough and falter. With too much fuel the fuel may drip from overflow ports in the carburetor, or the engine will not idle smoothly. Too much fuel may cause hard starting. Two unsatisfactory by-products of hard starting are the unburned fuel which is pumped through the engine and wasted, and dilution of the engine oil as the raw fuel seeps past the piston rings and enters the crankcase.

Checking Fuel Pump

The correct operation of the fuel pump depends upon two factors:

- Pressure at which fuel is delivered to the carburetor.
- Amount of fuel delivered.

There are two tests to determine if the fuel pump is performing these functions according to specifications. (Usually, fuel pump tests should be made while the pump is installed on the engine.)

Pressure Test. The steps to take in this test are:

- Disconnect the fuel line on the carburetor side of the pump.
- Attach a combination vacuum pressure gauge to the pump outlet.
- Start and run engine at 30 to 35 mph speed.
- Pressure reading on gauge should fall within maximum and minimum limits shown in the manufacturer's specifications.

As a rule, the working parts of the pump are in good condition if the pump delivers a pressure within the maximum and minimum limits. Pressure below the minimum limits is a sign of a worn pump. One part may be worn excessively, or the wear may be spread over all the moving parts. Generally pressure above the maximum limit indicates trouble in the pump diaphragm assembly.

The most economical maintenance procedure is to remove a pump that develops a pressure below the minimum or above the maximum limit and install a new or rebuilt unit.

Capacity Test. A capacity test should be made after the pressure test has proven the pump is within specifications. A capacity test will prove if the pump is delivering enough fuel to sup-

"A Dollar Saved is . . . . "

A dollar saved in fleet operating costs is worth a great deal more than a dollar of increased revenue. Actually, a dollar saved in fleet expense should be compared with the amount of money a telephone company must gain in revenue to increase profit by a dollar.

Viewed in this light, the economy maintenance suggestions in this and related articles to follow can have significant bearing on the company's operating profits.

An important plus value of economy maintenance is the improved operating performance of the telephone fleet.

ply the engine at all operating speeds. In most instances, fuel pump capacity measurements are based on the length of time the pump needs to fill a pint measure. Here is an easy way to make the measurement:

- Insert a tee in the fuel line between the pump and the carburetor.
- Attach a length of tubing to the tee.
- Place free end of tube in pint measure held level with carburetor.
- Start and run engine at idle speed.
- Determine time required to fill the pint measure.

The capacity of the pump is usually considered satisfactory if the pint measure is filled in the following time:

Engine Piston Displacement	*Time Required to Fill Pint Measure*
Under 225 cu. in.	One minute
Between 225 and 400 cu. in.	45 seconds
Over 400 cu. in.	30 seconds

Fuel pumps having a capacity equal to or greater than the test requirements usually are considered satisfactory for service. The pump delivering less than the specified capacity should be given further attention because the engine generally will be starved of fuel. An engine so starved will be sluggish and will lack pickup and power at higher engine speeds. The driver may resort to excessive use of the choke to overcome the starved condition. This will only serve to complicate an unsatisfactory operating condition.

One of the most common causes of low fuel pump capacity is an air leak in the intake fuel line. There are many possible causes of fuel line leaks in the average fleet vehicle and all should be checked. Look for these conditions:

- Obstructions in fuel line. Use air nozzle to blow out line. Remove the tank and bail out completely to remove foreign scale that may gather on the inner walls if the condition occurs at frequent intervals.
- Leaking or loose connections in the fuel line.
- Worn or deteriorating gaskets in the pump assembly.
- Dented metal sediment bowls.
- Cracked or chipped glass sediment bowls.
- Carburetor idle out of adjustment.
- Carburetor float valve out of adjustment.
- Worn carburetor float needle valve and seat.
- Cracked or deteriorated gaskets at any place in the fuel line.

Check Gasoline Strainer

In many cars and trucks, the gasoline supplied to the engine must pass through the gasoline strainer. The strainer removes dirt, rust, scale, water, and other foreign matter that may be present in the gasoline. The engine will be starved of fuel if the strainer is plugged. To check the strainer:

- Examine the outside of the sediment bowl. Traces of gasoline indicate a leaky gasket or a bowl not seating properly.
- Look for dirt or sediment inside the bowl. An accumulation of material in the bowl is an indication that the strainer element is partially or completely plugged.

The sediment bowl can be serviced by removing, washing in a bowl of clean gasoline, and allowing to dry. Avoid wiping with a cloth because lint may remain in the bowl and plug the strainer.

The strainer element can be cleaned by removing and washing by moving briskly back and forth in clean gasoline. Ceramic type elements generally must be washed in an approved cleaning solvent. A direct stream of air from an air gun is directed against the inner surfaces of the element to force dirt from the outside surfaces.

The strainer bowl gasket, if cracked or broken, should be replaced with a new gasket. Finally, reassemble the strainer and observe operation while the engine is running.

An unusual amount of gummy residue, dirt or water in the strainer element usually is a sign that the gasoline tank is contaminated with these substances. The gasoline tank should be removed and cleaned to avoid further trouble in the fuel supply system.

Carburetor Service

The carburetor, in providing the proper gasoline and air mixture for the engine, compensates for a number of variable factors, such as:

- Engine temperature.
- Outside air temperature.
- Engine speed.
- Acceleration requirements.

The first step in carburetor economy maintenance is to make a visual inspection of the carburetor and the linkage assembly. Signs of excessive wear are side play and loose fitting joints. The carburetor cannot meet the engine requirements under all operating conditions if the linkage system is worn. Thus, a badly worn linkage system usually is an indication the carburetor and linkage assembly should be removed for reconditioning or replacement.

Repair kits containing replacement jets and other parts can be kept on hand to simplify carburetor repairs. New or rebuilt carburetors and linkage assemblies can be carried in stock to speed carburetor service. In some instances, complete reconditioning or replacement is the only way certain carburetor troubles can be eliminated. In other cases a few minor repairs or readjustments may be the answer.

The general layout of the units which require service from the main fuel tank to the carburetor is shown in *Fig. 2*. This chart—furnished as a service by National Carbon Co., division of Union Carbide & Carbon Corp.—incorporates fuel system features of various manufacturers, and thus, does not represent any particular make of car. The places where moisture created by condensation may collect in the fuel system are indicated on the chart.

Many cases of suspected carburetor trouble are caused by dirty air cleaners. Air entering the carburetor first passes

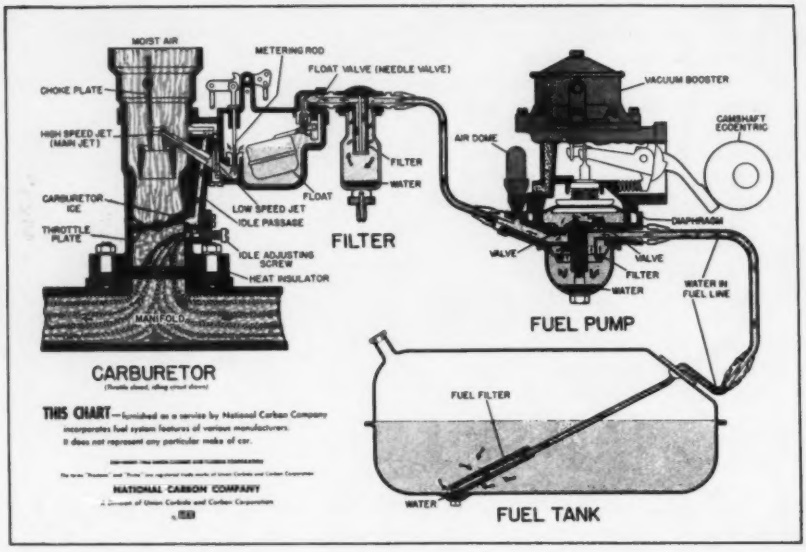


Fig. 2

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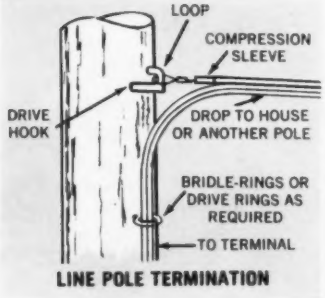

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through the air cleaner. Air-flow is restricted as dirt and other foreign material gathers in the cleaner element. In time, the supply of air will not be sufficient to provide the proper fuel air mixture and the engine will lose power and performance. The engine will be sluggish or may not run at all until the air cleaner element is cleaned or replaced.

Service procedures for the three types of air cleaners commonly used on fleet vehicles are as follows:

Dry Type. A dry type air filter should be inspected and serviced at intervals of 5,000 miles. The element should be replaced each 10,000 or 15,000 miles or as indicated by the inspection, or at least once a year. To service a dry type filter:

- Remove the air cleaner housing cover.
- Carefully remove the element from the air filter housing.
- Tap the element gently on a hard surface, such as a work bench, to remove the accumulated dirt. Do not use gasoline, water, oil, or any other substance on the element.
- Inspect the element. Discard any that are torn or partially blocked with dirt. (Inspection lights or air movement gauges designed especially for checking air filter elements are available at reasonable cost. These test units remove the guesswork from inspection of air filter elements. Torn or dirt-clogged elements are revealed instantly.)
- Wipe the air filter housing with a clean damp cloth.
- Reinstall the old element if serviceable or install a new element. Be sure to select the proper one to fit the air cleaner. The installation of a typical dry type filter element is illustrated in *Fig. 3.*
- Replace the housing cover. Tighten the wing nut finger tight. (Caution: Do not use a wrench or pliers to tighten the wing nut. The paper element in some air cleaners will crack if the cover is drawn down too tight.)

Oil Bath Air Cleaners. Oil bath air cleaners should be serviced each 5,000 miles of operation under normal driving conditions. The service interval should be shortened when the vehicle is operated under extremely dusty conditions. Service procedures for oil bath cleaners are as follows:

- Remove the wire mesh air cleaner element.
- Soak the element in kerosene or an oil remover solvent. Leave the element in the cleaning solution while cleaning the oil bowl of the filter.
- Clean the oil bowl by wiping thoroughly with clean cotton waste or clean wiping rags.

Fig. 3

- Fill the bowl to the fill line with SAE No. 30 engine oil.
- Rinse the element in the cleaning solution.
- Allow the element to air dry. Avoid using an air gun to dry the element because air pressure can damage the unit.
- Replace the wire mesh in the air cleaner housing.
- Clean and replace the housing cover.

The wire mesh element will be recoated with fine particles of oil by incoming air passing rapidly over the clean oil in the oil bowl.

Oil Wetted Air Cleaner. Servicing an oil wetted air cleaner is practically the same as servicing an oil bath air cleaner. However, the service interval should be shortened to every 2,000 or 3,000 miles. Service procedures are as follows:

- Remove the air cleaner cover and remove the wire mesh cleaner element.
- Soak the cleaner element in oil-remover solvent or kerosene.
- Wipe out the element housing with clean waste or clean rags.
- Rinse the element in solvent or kerosene.
- Allow the element to drain. Do not use an air gun to dry out the element as air pressure may damage the unit.
- Re-oil the element mesh generously with clean SAE 50 engine oil. Be sure to cover the complete mesh surface with oil. Allow the element to drain off the mesh. Do not shake or use air gun to remove excess oil.
- Replace element in cleaner housing and replace cover.

Heat Control Valve

Some engines have a manifold heat control valve to speed the warm-up of the intake manifold when a cold engine is started. This, to a great extent, eliminates the passage of unvaporized or raw fuel into the combustion areas of the engine.

Most heat control valves have a coiled spring and counterweight as an actuating element. The spring is contracted when the engine is cold and the control valve is closed to hold the heat in the intake chamber. The spring expands as the chamber warms up and the valve opens to permit normal heat dispersal.

In some engines the heat control valves are equipped with an anchor pin and anchor base assembly which permits adjusting the actuating spring to compensate for seasonal temperature conditions. The spring should be adjusted for a stronger tension to keep the control valve closed for a longer period of time in winter weather. The opposite condition exists during warm weather and the spring should be set to open the control valve in a much shorter time.

Economy maintenance of the heat control valve is as follows:

- Grasp the counterweight with the fingers and rotate through the entire operating range. The valve should rotate freely and the shaft should have perceptible end play.
- If shaft is frozen in the manifold, tap gently on the end of the shaft with a light hammer and rotate the counterweight.
- Lubricate the shaft with a watery mixture of powdered graphite and kerosene or alcohol. Avoid using oil on the shaft because it may carbonize and freeze the shaft.

Air Leaks

Air leaks at any place in the intake manifold will affect over-all engine performance. Air may leak into the intake manifold at any of the following places: Joints at the carburetor or cylinder head; manifold cracks; loose connections in the windshield wiper line; or cracked windshield wiper hose. These joints should be checked for leaks. Swollen or cracked windshield wiper hose should be replaced.

To check for leaking manifold joints:

- Start engine.
- Connect a tachometer and set engine speed at 450 rpm.
- Apply gasoline at each manifold joint. A squirt type can is handy for this job.
- Note any changes in the tachometer reading.

A slight change will be noted in the tachometer reading when gasoline seeps into a leaking joint. Tighten the manifold joints to the proper tension,

(Continued on page 65)

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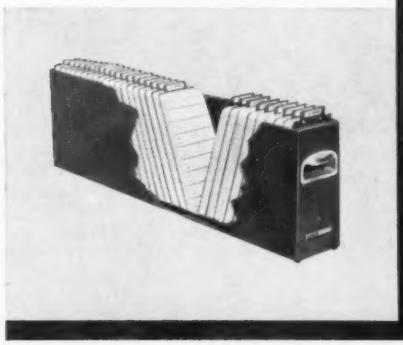


ASSIGNMENT-REPAIR DESK conveniently centralizes cable, terminal and line card records. Saves waste motion and affords generous desk-top work surface.

COMPACT TUBULAR STAND This space-saving unit handles up to 3000 stations. Provides convenient sliding work shelf. Rolls on ball-bearing casters.

ACME VISIBLE Telephone Record Systems speed installation and repair service

Today, with a record number of telephones in service—and with continued heavy station growth—efficient paper work and quick reference systems are vital. Many central offices have upped their efficiency by using Acme Visible Systems, designed in partnership with telephone operations experts.

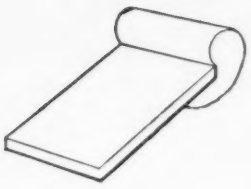
ACME VISIBLE

Serving all departments of telephone companies
ACME VISIBLE RECORDS, Inc.
4011 West Allview Drive, Crozet, Va.

Please give me literature on your systems for telephone records.
We have _____ line cards and _____ cable and terminal records.

NAME_____ TITLE_____
COMPANY_____ ADDRESS_____
CITY_____ ZONE____ STATE_____

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

THE WRITER journeyed to Baltimore, Md. recently to witness a demonstration of two types of couplings developed for use on butt-lapped multiduct conduit.

Construction men will agree that we have never had an entirely satisfactory coupling for this type of conduit. Dowel pins and cheesecloth or burlap bandage and mortar have been used down through the years to provide joint protection in clay conduit. The difficulty has been, however, that this type of protection is not waterproof. Water carries silt into the ducts, and its removal prior to the installation of cable often proves time-consuming and expensive.

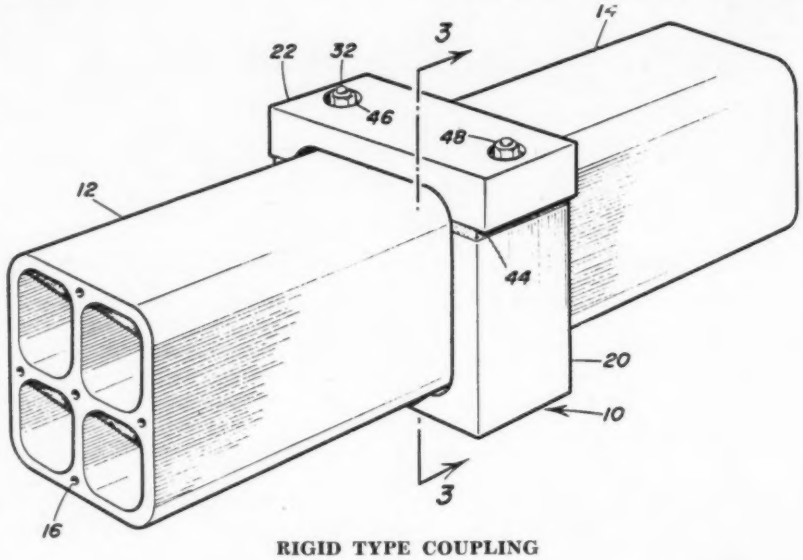
This demonstration indicated that definite progress has been made toward solving this problem, and it appears highly probable that these new types of couplings are the long-awaited answer.

The Rigid Type coupling used in the demonstration was fabricated from precast concrete. It is constructed in two sections and the top is held in place by two nuts placed on the threaded reinforcement rods imbedded in the lower section. Neoprene "O" rings are placed under the coupling to provide the water seal in the same manner as used on cement water pipe. Neoprene pads are also placed between the two sections of the coupling prior to clamping the conduit joint.

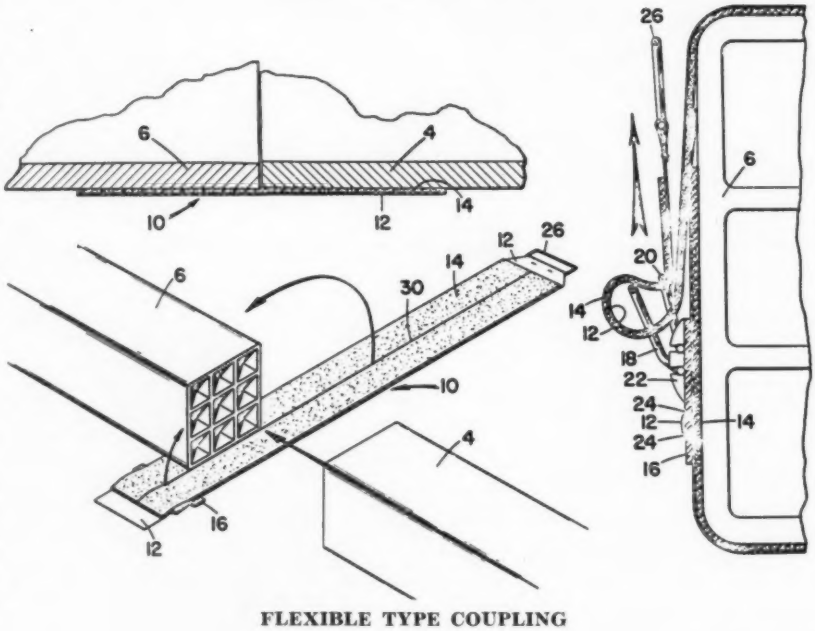
Dowel pins are not required when this rigid coupling is used. A wider coupling can also be furnished for use on the broken ends of multiduct clap conduit. The use of this device should eliminate many costly repairs to conduit since the ends are frequently chipped in shipment.

The Flexible coupling demonstrated consists of a plastic padded strip of vinyl. A bucket arrangement is attached to one end and the strip, which is placed around the conduit joint and cinched up like a belt. Considerable tension is developed at the buckle and the coupling fits snugly and neatly around the joint. We are advised that numerous tests have indicated that this flexible type coupling also prevents the entrance of silt into the ducts. Either type coupling can be used to lay curves without the use of mitered conduit.

These new type couplings will obviously cost more than the old mortar and bandage types. It is believed, however, that they will save considerable labor, and labor, today, represents



RIGID TYPE COUPLING



FLEXIBLE TYPE COUPLING

FOR TRANSMISSION MEASUREMENT

Simple carrier reinsertion in this Frequency Selective Voltmeter

Sierra Model 125B-CR Frequency Selective Voltmeter

Monitoring of single-sideband carrier telephony signals is simple with self-contained crystal oscillators for carrier reinsertion in the Model 125B-CR Frequency Selective Voltmeter. Continuous tuning 3 to 620 kc, the 125B-CR is also a flat ac VTVM, 1 to 620 kc.

Direct-reading frequency, continuously tunable. Virtual elimination of spurious responses. Variable selectivity – 250, 2,500 cps, each 3 db down. Accuracy ±1 db, – 80 to + 32 dbm (as flat VTVM, ±0.5 dbm, – 20 to + 32 dbm), ideal for measuring carrier levels. Self-contained crystal oscillator for both frequency and level calibration

- ACCURATE,
- SENSITIVE,
- VERSATILE

SPECIFICATIONS common to selective operation of the

Sierra Model 125A, popular general purpose model

Sierra Model 125B-CR, with internal crystal oscillators for easy carrier reinsertion

Sierra Model 125B-Y, incorporating special 20-pin connector for carrier rack fast patch

Frequency Range	Selectivity		Frequency Accuracy		Measuring Accuracy	Line Impedance for direct reading in dbm
	3 db down	45 db down	Low End	High End		
3-620 kc	±125 cps ±1250 cps	±500 cps ±5 kc	±1 kc	±2 kc	±1 db	Bal. or unbal. 135 & 600 Ω; bridging input impedance, 20 kΩ nominal.

The Sierra Model 158A Frequency Selective Voltmeter operates from 500 kc to 10 mc; selectivity ±2000 cps 3 db down, ±20 kc 45 db down; frequency accuracy ±0.056 mc low end, ±0.08 mc high end; measuring accuracy ±2 db; line impedance for direct reading in dbm, unbalanced 600 ohms.

Three flexible models in the convenient Sierra 125 series of Frequency Selective Voltmeters

Rapid location of faults on cables, transmission lines!

Sierra Model 124A Line Fault Analyzer; Instantly pinpoints shorts, opens, grounds, indicates nature of fault, plus exact location. Easy to use, operates on "radar" principles; operates on most metallic power and communication lines, direct reading ½ to 100 miles, accuracy within ¼ mile.

Write or call Sierra today for complete data on these and other instruments for communications application.

Data subject to change without notice.

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real money. This, and the fact that these new couplings do a better as well as permanent job, make it appear highly probable that their use will prove to be an economical investment for all operating telephone companies.

•

The U. S. Air Force Combat Logistic network (COMLOGNET), claimed to be a major advance in the transmission of logistic data and message communications, was placed in service at Norton Air Force Base, San Bernardino, Calif., recently.

Western Union is the prime contractor for the project, with Radio Corp. of America, the supplier of the automatic electronic switching center equipment.

The Norton AFB installation is the first of five centers through which data and messages from more than 350 air bases, depots and stations in the United States will be interchanged. Completely automatic and compatible with other Department of Defense communications systems, this network will be capable of sending and receiving more than 100 million words, or an equivalent 7 million punched cards daily.

The first shipment of equipment, including RCA magnetic tape storage units, computer and switching components as well as Western Union technical control components and terminal equipment racks, was delivered directly from Camden, N. J., and Chattanooga, Tenn., where prototype operating tests were conducted by the two companies.

When completed in 1962, this system will be operated by Air Force Communications personnel especially trained in the advanced communications techniques developed through eight years of research by the Air Force and Western Union.

Each of the five centers will contain both message and circuit switching elements, each able to operate independently. They will integrate data processing with record communications techniques through automatic electronic means requiring a minimum of human attendance.

A pioneer achievement in communications, COMLOGNET is said to be a major step in the development of space-age communications. Information can be fed into the system in punch-card, paper tape, or magnetic tape by teleprinter. All control information required for the switching centers to automatically perform switching, routing and other processing functions from origin to destination is contained in the message headings. These include several levels of priority with the highest levels able to automatically pre-empt the circuits in order to expedite transmission at any time.

Hello, Telephone Company? I'd like to report a case of trouble

Upon completion, it is claimed that this system will be the world's largest and most advanced data communications system, attaining a degree of speed, accuracy and reliability never before achieved. It will utilize a wide range of equipment to transmit information at speeds from 100 to 3,000 words per minute. The centers are designed to employ speeds 20 times that rate when needed and are built on a modular basis permitting future growth and adaptation to advances in data communications.

•

If Americans have a common characteristic, it's curiosity, that insatiable quest to know what's happening. And if we consider any prime targets for this inquisitiveness, they would probably be "time," "weather" and "news."

For the past quarter century, the public has been able to pick up the telephone, dial a couple of numbers, and receive instantaneous "time" and "weather" information. Now, another new service has been provided in Cleveland, O.—"Dial-A-News."

Cleveland's W-E-R-E radio station initiated this unique telephone service in conjunction with the Bell Laboratories and the Ohio Bell Telephone Co. The Bell Laboratories' new 8A Announcement System made this "telephone news" possible.

"Dial-A-News" provides up-to-the minute local, national and international news flashes around the clock by W-E-R-E's news staff to anyone dialing TOwer 1-8800 in the greater Cleveland area. Nearly a million news inquirers have made use of this news service to date.

A caller will hear 50 seconds of concise, instant news, and 10 seconds of commercial and sponsor identification.

•

A recent article in *This Week* magazine titled: "Terror on the Telephone" describes how teen-age girls are making a practice of calling housewives and informing them that their husbands have just been killed in an accident. Apparently these girls take turns to see who can be the best actress.

The police and telephone companies are sympathetic when these incidents are reported to them, but there is not much that can be done about it. This "joke" has been played on several people. One woman has suffered a major heart attack and is still bedridden. It is also claimed that this "game" is spreading to other parts of the country.

Authorities have pointed out that it is extremely difficult for either the police or the telephone company to apprehend the culprits, and once apprehended, the usual penalty is that of removing the telephone service, an action that hurts the unknowing parents more than the girl.

Perhaps some day when these girls are older, and know the inner fear that every woman holds for the safety of her husband and children, they will realize what a cruel and vicious thing they have done.

Meanwhile, this article recommends the best protection is to be forewarned.

If anyone calls you with bad news, don't take it at face value—check by calling back.

We doubt, however, that anyone receiving such shocking news would care to take this precaution. Nor have we ever been able to understand how any person—regardless of age—would have such a warped mentality as to call a wife and claim that her husband has been killed.

People who call airlines and claim that a bomb has been planted on a certain aircraft are in the same category. These people certainly have serious emotional problems and are a hazard to any community.

"Cross Talk"

It is claimed that an old timer remembers when a new baby was prized as an addition instead of a deduction.

call Graybar for new, trouble-free Lynch "O" type carrier system. Plug in your new Lynch B-510 system—and operate. Your revenue begins at once! There's no field assembly . . . no field lineup. Your B-510 comes fully packaged, factory aligned, and easy to test with standard equipment. It's ready to "plug-in" and operate as soon as you get it. And it's fully compatible with the W. E. type "O". ■ Put a Lynch B-510 at your end of the toll circuit—step up to a trouble-free trunk system. For details, ask Graybar for Bulletin B-510. Better yet, have your Graybar man prepare a Transmission Line Survey for you. It's one more reason to call Graybar—for everything. Graybar Electric Co., Inc., 420 Lexington Avenue, New York 17, N. Y.

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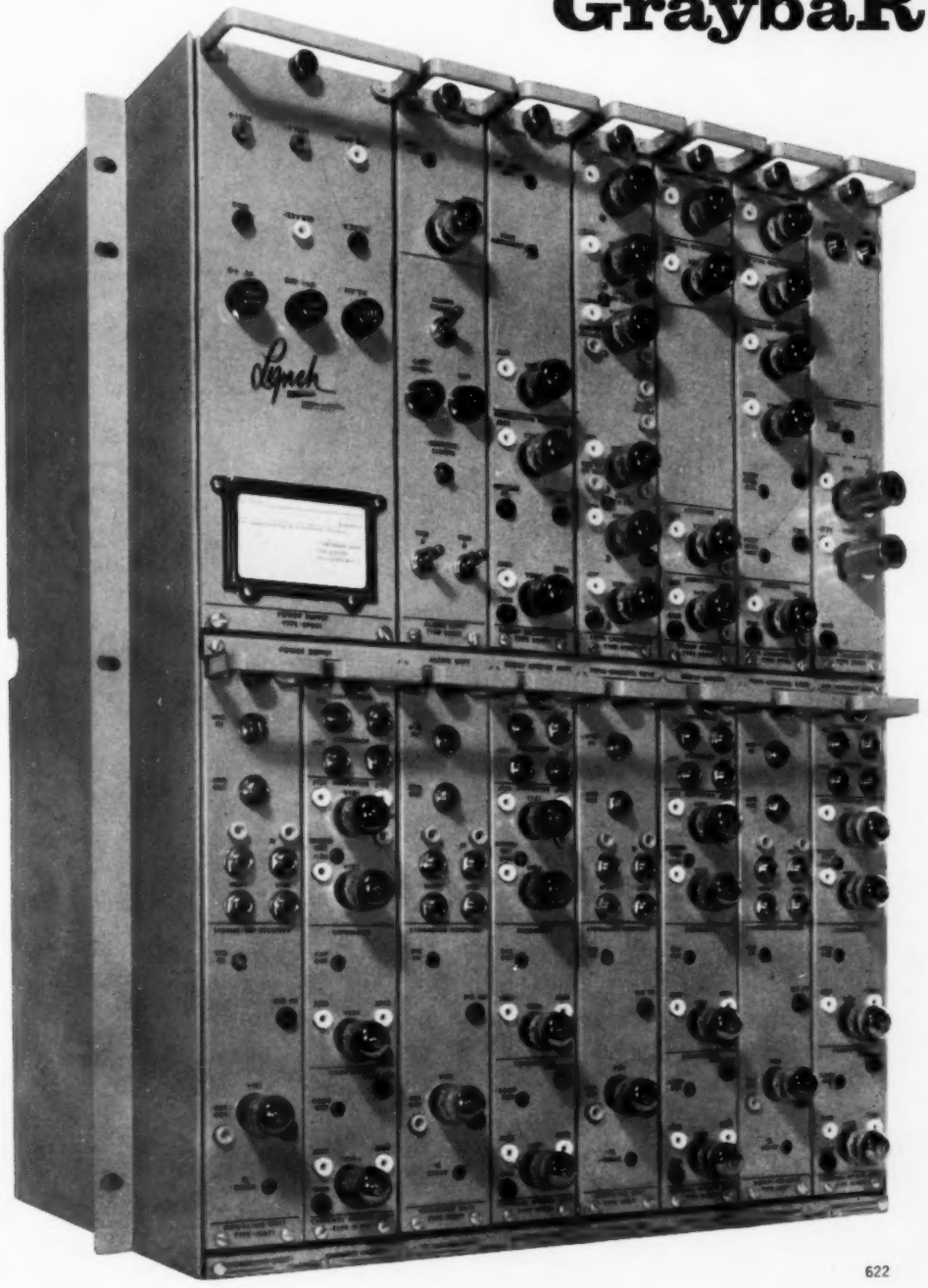

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MITA Projects Goal

"A-OK FOR '62"

By C. D. MC LELLAN*

MICHIGAN'S FURNITURE capital, Grand Rapids, was the scene on Sept. 19-20-21 of the 26th annual convention of the state's Independent telephone association. The largest group ever to represent the 93 Independent companies in the state was registered at the Pantlind Hotel for this occasion.

Tone of the meeting throughout—in choice of speakers; in program planned, both business, and social; and in continuing industry-public relations—was that of facing problems realistically, and taking vigorous action to solve them.

K. B. Sage of Central Lake set the pace for the action-filled Michigan association's three-day meet in giving his president's report for 1960-61. The retiring president said:

"Of course you know that your association early in the year entered into discussions and negotiation with the Bell company and the commission on the WATS program. As the net result, all member companies are now participating in the WATS program.

"Your state association in line with the USITA was responsible for a new toll settlement agreement. The new agreement means an increase to all companies of about 7 per cent over and above what you had before.

"We have been instrumental in developing, with the accord of our Michigan Public Service Commission, a new foreign exchange tariff with results in restricting all FX to a toll basis."

Among other things accomplished, Mr. Sage reported, were: the development of a specific plan to use as a study basis for EAS. Then, following the adoption of the state "nuisance taxes," an agreement was made with the revenue department to permit exemption from much of the use tax payable by telephone companies.

Legislation opposed included the need of getting approval of rate increases from the house of representatives after commission approval; and the bill making the commission responsible for setting wage rates within the telephone industry. The Michigan association supported such legislation as more severe penalties on breaking and entering coin boxes and the fraudulent use of credit cards.

Study and work by the small company committee of problems also gave attention to mergers that will strengthen all companies.

Mr. Sage concluded his report, stating that the Michigan industry continued its 10-year growth pattern with 338,831 telephones in service at Jan. 1, 1961, as compared with 200,954 in 1952. Over 84 per cent of these are now dial, as against 33 per cent 10 years ago, he told the convention.

Michigan Independents "rolled up their sleeves" in a practical workshop session over which J. C. Bell of Caro presided.

In this phase of the program, the convention took a look at "New Developments in Outside Plant Construction," as presented by Charles Ballard of the REA Telephone Standards Division. This afforded opportunity for discussion.

A film, the Laying of the Altantic Cable, was also incorporated in the program during this period.

The Hon. Donovan Rau, Deputy Commissioner of the Michigan Department of Revenue, spoke on "Our Tax Situation." He pointed out that new taxes are a necessity in the state; and that there is little question that the "nuisance tax" on telephone service, which was in effect for 18 months, is certain to be one of the taxes considered by the Michigan Legislature as an additional source of revenue.

Another vital subject, of interest to every Independent telephone company, was "1961 Wage & Hour Law Amendments," a discussion of which was lead by Ward F. Parks, investigation supervisor of the Wage and Hour and Public Contracts Division of the U.S. Department of Labor.

L. B. Lindemer of Stockbridge presided over the convention on Thursday, the last day of the meeting, and called the capacity crowd to order.

Greetings from the United States Independent Telephone Association were brought at that time by C. C. Pearce of Riceville, Ia., immediate past president of USITA. In his challenging talk on the "Frontiers in Communication," Mr. Pearce urged Michiganders to keep an alert look ahead for the opportunities in Independent telephony, which he feels are to be even greater in the satellite age.

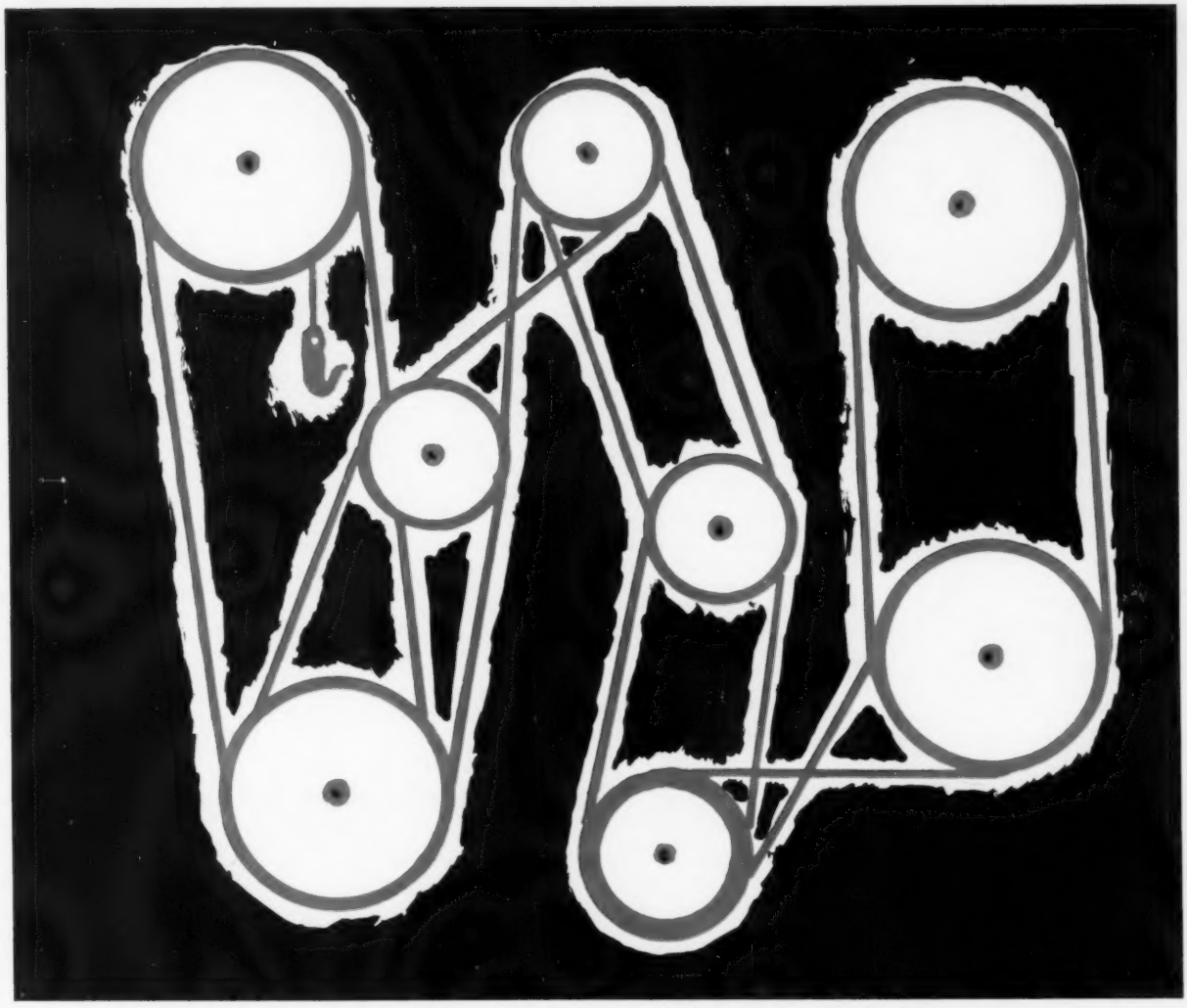
In a swift-paced review of telephone accomplishments to date, Mr. Pearce showed how opportunities for growth have been used as stepping stones to greater progress, and urged the Independents to keep pace with the ever-growing demand in the communications field.

Challenging the audience to meet the needs of education, Franklin G. Bouwsma, director of community relations for Delta College of Saginaw, talked on "Educational TV and Communications," an area offering new opportunity for industry service.

Mr. Bouwsma detailed the factors which he feels make for rapid development in this new field of instruction, and urged his audience to participate in the development where telephone facilities are essential to the healthy progress of television educational programs.

The Michigan program also offered a change of pace with its feature, "Communication and National Defense," a report from NORAD Headquarters in Colorado Springs, Colo. This was a direct-line report from NORAD, which permitted the audience

*Mr. McLellan is executive secretary of the Michigan Independent Telephone Association.



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Given enough power this arrangement could lift a tremendous weight. But who needs it when a simpler mechanism will do the job better?

In trunk cable systems, too, simplicity is highly desirable. One of the main objectives of the Panhandle "X" system was to obtain maximum ease and simplicity in lineup. The use of "go... no go" test equipment makes the "X" lineup the simplest in the industry. With its universal equipment panel and front mounted plug-in modules, installation is simplicity itself. Inherent features of *angular modulation, transistorized circuits, pot core filters,* and other *new concepts* keep operation simple... maintainance low... reliability high.

Write today for full information on how the Panhandle "X" Carrier system offers you maximum expansion with *lowest initial cost* and *maintainance* . . . and *highest reliability* . . . through *simplicity of design.*

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to ask questions of the officer in charge at the center in Colorado Springs.

The opportunity of hearing the views of the Hon. James Inglis, new chairman of the Michigan Public Service Commission, Lansing, in "Regulatory Reflections" was timely, for the chairman has only recently assumed this post.

The new chairman commended the Michigan association for its spirit of cooperation to provide the public with good service, and commented on the increasing rate of Independents' growth in telephones serviced.

He also stressed the roles of publications serving the Independent industry.

Chairman Inglis observed further that "both of our large universities are conducting summer schools for the training of telephone management personnel." He mentioned specifically the University of Michigan's Public Utility Executive Program, and the Telephone Engineers' course at the Michigan State University, under the sponsorship of USITA.

Chairman Inglis reminded his audience of the new opportunities for service being opened up in Michigan by the network of freeways now under construction, and of the work of the Michigan Economic Development Department in bringing more industry to the state. The expected greater growth of suburban areas when the freeways are completed, and the greater accessibility of resort areas to the public will greatly increase telephone business, he believes.

Keynoting the general session of the Michigan Independent's meeting was Joseph L. Van Horn, president of the General Telephone Cos. of Iowa, Missouri and Nebraska, and mayor of Grinnell, Ia.

Leadership of the Michigan Independent Telephone Association for 1961-62 is vested in these officers and directors. Standing (left to right): K. B. Sage of Central Lake, immediate past president; Edwin L. Caldwell of Levering; Don K. Carlson of Morenci; A. H. Nickless of Millington; A. M. Spry of Howard City; and D. M. Davis of Bridgman; and Glenn Watterson of Brooklyn, both newly elected to the board. Seated (left to right) are officers: R. J. Daverman of Calhoun, first vice president; John Collver of Climax, president; L. W. Reynolds Sr. of Ontonagon, Upper Peninsula vice president; and K. W. Benckert of Muskegon, treasurer. Not in photo are John Fox of Waldron; and C. D. McLellan of Lansing, secretary and executive vice president.

Speaking on "You're in Politics Whether You Like it or Not," Mr. Van Horn effectively pointed out that the business community has too long held itself aloof from politics, to the disadvantage of those whose responsibility it is to create a healthy economic and industrial climate.

With Michigan ready to embark on its first constitutional convention in half a century, the speaker's presentation held a standing-room-only audience in rapt attention.

A favorable legislative climate is the key to healthy businesses, he noted. "We take the position," Mr. Van Horn stated, "that all people in every area are therefore anxious to see that a favorable legislative climate is maintained as an aid in keeping local business healthy.

"Favorable," he pointed out, "does not suggest special privileges, but a climate where the needs of the business community are fully considered with the needs of the over-all community."

An effective job of communicating business problems and requirements for "staying healthy" needs to be accomplished with governmental bodies at the state and local level, according to the speaker.

Mr. Van Horn urged the business delegation to:

(1) Encourage employes to vote, without reference to political parties or candidates.

(2) Discuss political issues in employe publications.

(3) Testify, through corporation officials, on pending legislation, and let

(Continued on page 36)

During a coffee break at the recent MITA convention, Independents honored retiring director R. J. Schafer of Pinconning. Excitement ran high among the capacity audience as the Michigan convention attendance award presentation was made.

This new issue of First Mortgage Bonds is being sold to the general public by a group of investment dealers, including the undersigned. The offering is made only by means of the official Prospectus.

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General Telephone Company of Florida

First Mortgage 4⅝% Bonds, Series H

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Price 100.40%

(Plus accrued interest from November 1, 1961)

You are invited to ask for a Prospectus describing these First Mortgage Bonds and the Company's business. Any of the underwriters, including the undersigned, who can legally offer these Bonds in compliance with the securities laws of your state will be glad to give you a copy.

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Hemphill, Noyes & Co. — **Hornblower & Weeks** — **W. C. Langley & Co.**

Lee Higginson Corporation — **Mitchum, Jones & Templeton** — **A. C. Allyn & Co.**

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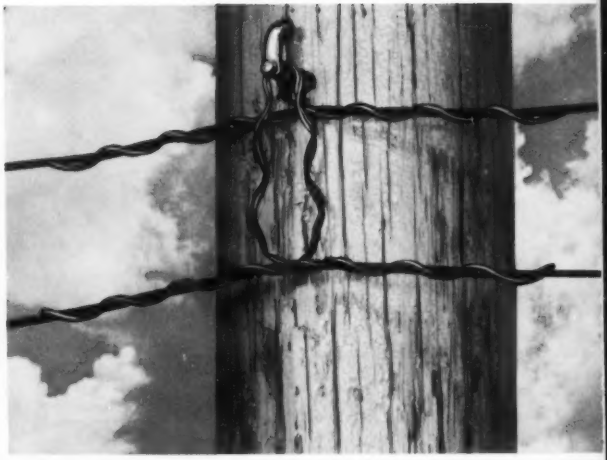
November 3, 1961.



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Sure, economical way of dead-ending one-pair aerial distribution wire to a drive hook, eye bolt or through bolt.

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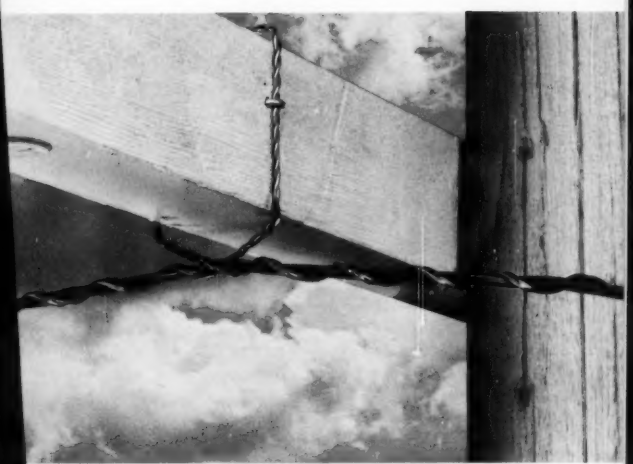

Preformed TRADEMARK NEW One-Piece Crossarm Tangent Support

Cradles and protects the wire against contact with the crossarm without the use of separate protective material.

Use on long spans for greater ground clearance; and on poles where climbing clearance is needed.

Preformed Dead-Ends and Tangent Supports are flexible, stainless steel and neoprene coated.

legislators know, either in writing or by personal calls, how they feel about specific issues or things in general.

(4) Discuss in institutional advertising political candidacies, economic issues having a political impact, or other subjects suspected of having political overtones.

(5) Educate employes on political and economic issues through management publications, films, discussion programs, and in many other ways.

(6) Encourage managerial and supervisory personnel to learn and engage in practical politics.

(7) Keep close contact with local officials, legislators and others empowered to make decisions affecting the corporation's welfare; keeping informed on community issues and problems, and keeping officials informed of the business viewpoint.

At the banquet of the Michigan association, Grant Iler, supervisor of the Independent company relations department, brought greetings from Michigan Bell Telephone Co.

Using a weather figure of speech analogy, Mr. Iler referred to some of the rough rides that "strong breezes" over the lakes have been giving Michigan telephone operations during the past year. For example, there have been rough rides with WATS and the modernization of TWX service; and mark-sensing, DDD, cost studies and other industry operations are still being buffeted in the winds.

But, he told the Independents, ". . . competition being what it is, we can't afford to stand still. Progress in the communication business is the essential life-giving blood, which will bring forth more and better things in the future for all of us. So *(in the words of H. W. Longfellow)* 'Let's be up and doing, With a heart for any fate: Still achieving, still pursuing, Learn to labor and to wait.' "

President - elect John Collver of Climax (third from left) guides wheel - chair of C. B. McLellan, Michigan Independent Telephone Association executive vice president, through lobby crowded with visiting conventioneers.

The report of the MITA 1961 small business committee was delivered to the convention by R. Lyle McGowan, chairman. Mr. McGowan revealed that "there are now only three Michigan telephone companies on record with a total of less than a thousand stations that do not have any plans for dial conversions. Speaking in behalf of the committee, he urged that the "entire Michigan Independent Telephone Association extend to" these companies "all possible ance in resolving their indi problems standing in the way o ing all these other operating panies in their efforts to abi their pledge to continue to stri wards better and better service public."

The transmission and comm tion improvement committee, c ing of Bruce Robinson as cha and Jim Hoogesteger and Bill S recommended a two-day educ school type program to be spo by MITA. To be included in the da would be the following su Numbering plan, switching re ments, transmission conside maintenance consideration, loading, resistance design, and scribers' carrier.

At the association's banquet, nition was given to Jane McNal served MITA at its founding, a first secretary of the Michigan Service Commission.

Another feature of interest t who participated in golf and t dinner at the Blythefield Countr was the presentation by D. C. of the Leich Electric Co. of t day award which went to Fred man for low gross score.

Women's events under the di of Ruth and Adelle Davis of Br marked a high in attendance a terest. Mr. and Mrs. Davis' rou world cruise story and mem provided interesting program n at a women's dinner. The were also guests at a tea preside by Mrs. Julia Sage, wife of the president, and Mrs. Mary Collve

(Continued on page 42)

Guests at women's tea during recent convention of Michigan association were these ladies, served by Mrs. John Collver (seated), wife of newly-elected president John Collver of Climax. Standing (left to right): Mrs. James Moore of Caro; Mrs. Robert Squires of Lansing; Mrs. Helen Luesing of Levering; Mrs. Edwin Cadwell of Levering; Mrs. E. S. Herzog of Hale; Mrs. M. W. Slack of Detroit, Mrs. J. C. Bell of Caro; Mrs. Don C. Carlson of Morenci; Mrs. R. J. Schafer of Pinconning; Mrs. Reginald Smith of Port Hope; Mrs. D. M. Davis of Bridgman; Mrs. Ted Mead of Honor; Mrs. Fred Harris of Jackson; and Mrs. Lawson Chambers of Ogemaw.

3

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BAKELITE high-density polyethylene provides greater toughness in thinner walls. Resists crushing and cut through.

2. INNER JACKET

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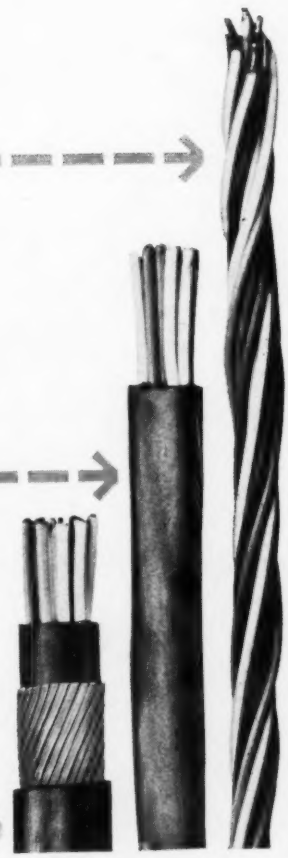
3. OUTER JACKET

Tough polyethylene resists weathering, moisture, corrosives, and provides mechanical protection during installation and underground service.



BAKELITE Brand polyethylene continues to meet modern telephony's highest standards for insulation and jacketing.

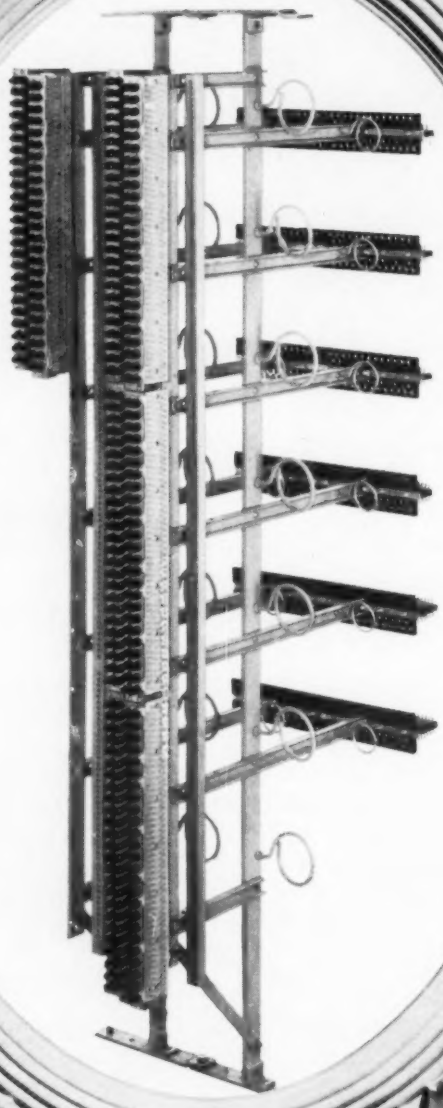
Alphaduct Wire and Cable Co., New Brunswick, N. J., now produces armored, direct buried, multi-pair (3, 6, 12) distribution wire—with insulation, inner jacket and outer jacket made of 3 different kinds of BAKELITE polyethylenes . . . each designed to do a specific job.

In this and in many other communications applications, BAKELITE polyethylene offers outstanding mechanical protection plus low-loss characteristics over a wide frequency range, making possible lower capacitance unbalances, and reduced cross talk and noise level.

For full information on how quality BAKELITE polyethylene can increase the efficiency, performance and reliability of wires and cables for aerial, duct, aboveground and buried installations, write Dept. KY-139K, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y. *In Canada:* Union Carbide Canada Limited, Toronto 12.

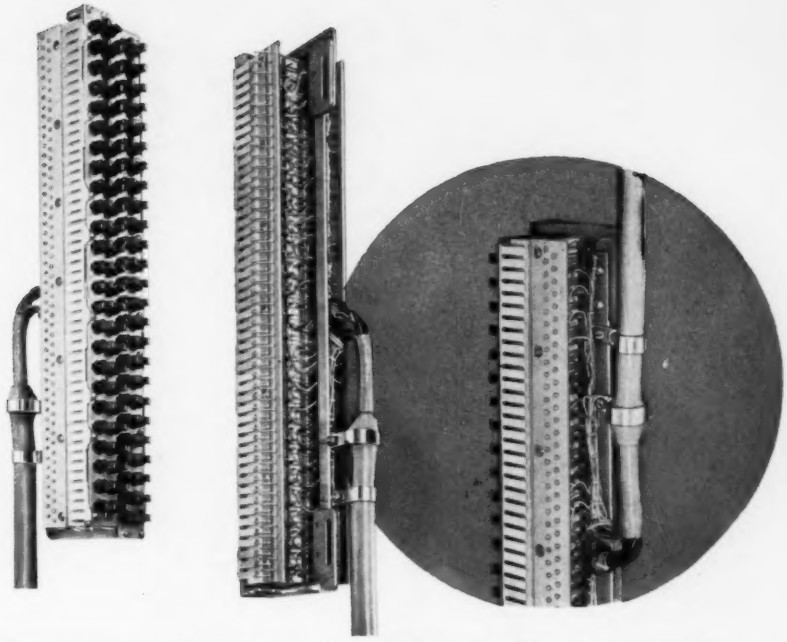
UNION CARBIDE **PLASTICS**

BAKELITE and UNION CARBIDE are registered trade marks of Union Carbide Corporation.



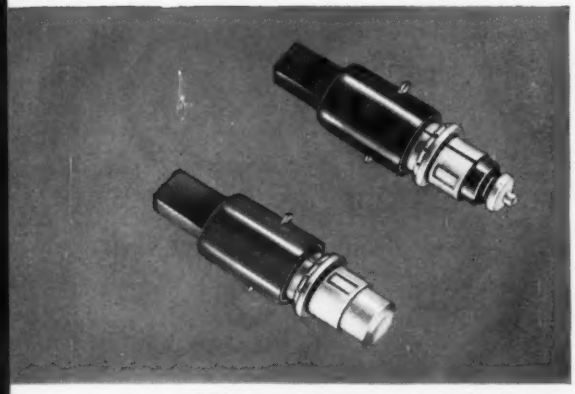
A *Reliable* image of improved main frames

The R300 Connector has a cast resin body, metal faceplate and twistlock inserted protector units. Circuits may be opened without removing the protector units.



Stub cable is wire wrapped to projecting terminals at the back of the connector and is secured to an aluminum reinforced bar. All R300 Connectors are supplied with mounting brackets suitable for attaching to Main Frame protector bars.

Stub cable is 22 or 24 gauge PVC insulated, available in 101 or 51 pair; it is light, flexible and easy to handle.



Protector elements and contacts are completely enclosed in a dust-free high grade plastic assembly.

Catalog No. 3004 protector unit has a standard central office type heat coil and a .004 carbon-to-carbon air gap protector.

Catalog No. 3000 protector unit has a metallic dummy heat coil for use where heat coil protection is not required.

Reliable Type R300 Connectors and Main Frames are designed for installation in new or existing central office main frame rooms as well as P.B.X., P.A.B.X. and sub-exchanges. Connectors may be ordered in 50 or 100 pair banks with or without cable stub.

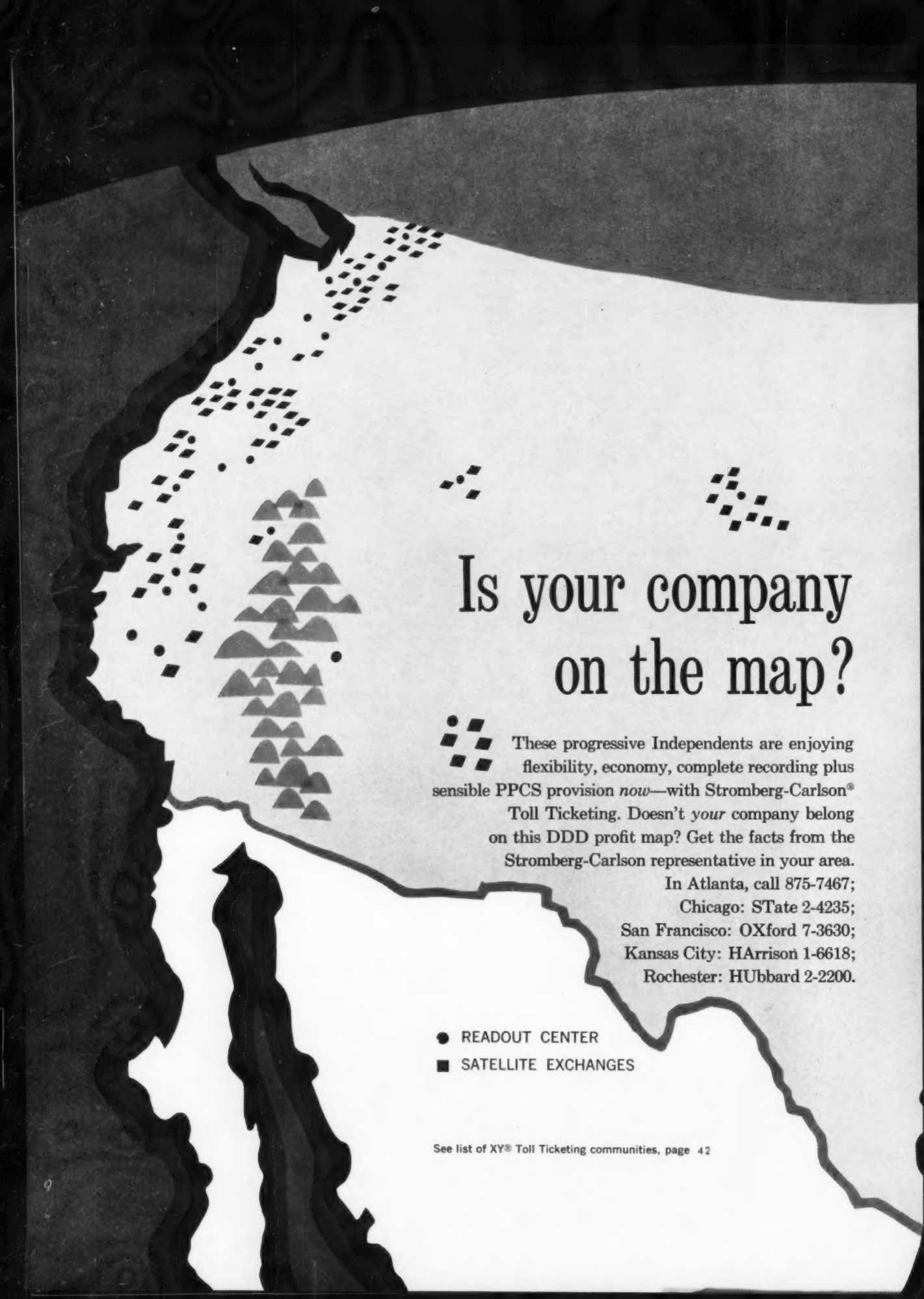
Light and compact, the 100 pair connector can be installed by one man in just a few minutes. Unpacking the R300 Connector is also a one-man operation; it is easily removed from a light, strong corrugated carton without the use of tools.

Write for detailed information in Reliable's Product Data Sheet No. 32.

Reliable

A Symbol of Integrity Since 1909

ELECTRIC COMPANY • Franklin Park, Illinois



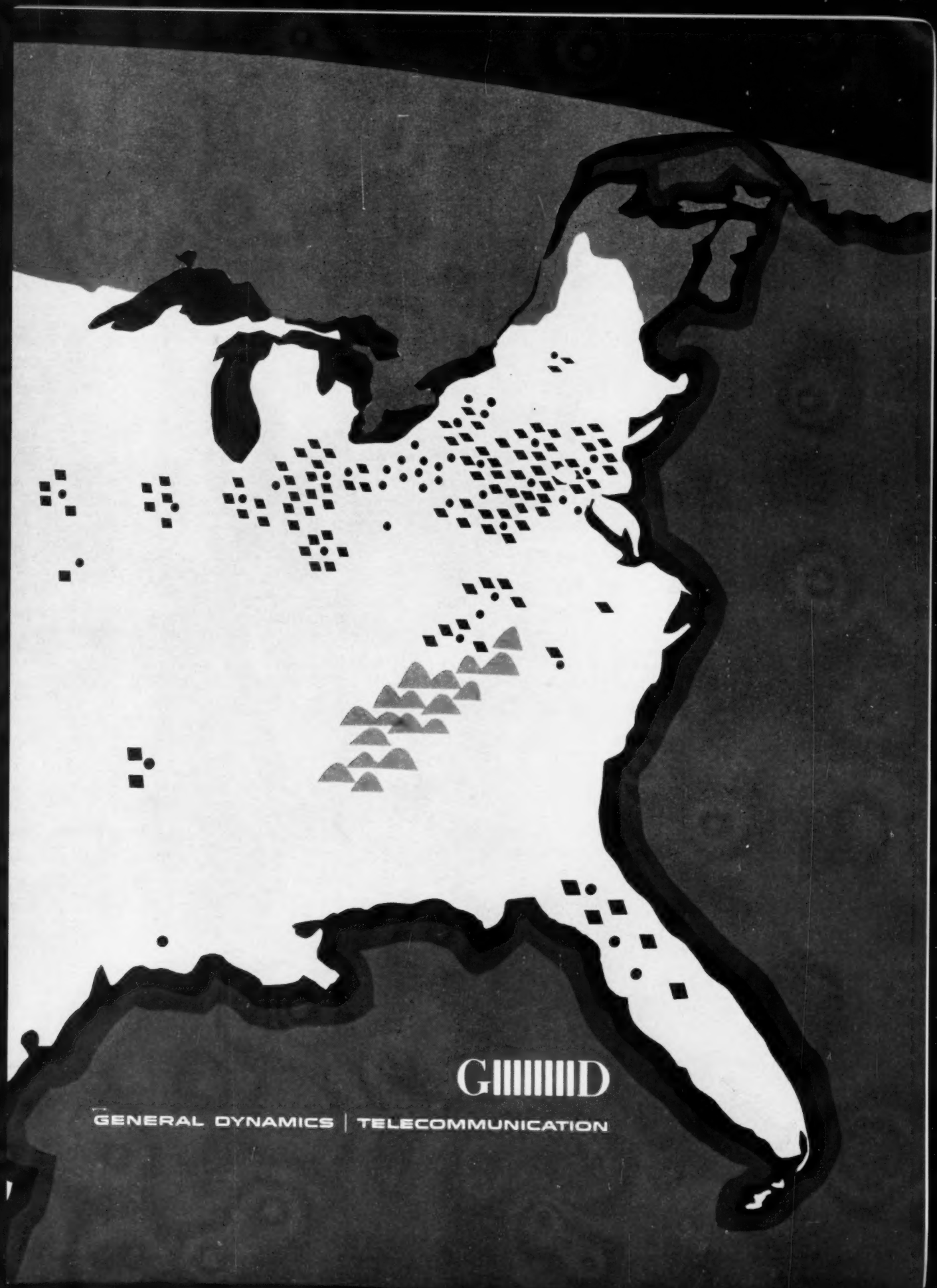
Is your company on the map?

These progressive Independents are enjoying flexibility, economy, complete recording plus sensible PPCS provision *now*—with Stromberg-Carlson® Toll Ticketing. Doesn't *your* company belong on this DDD profit map? Get the facts from the Stromberg-Carlson representative in your area.

In Atlanta, call 875-7467;
Chicago: STate 2-4235;
San Francisco: OXford 7-3630;
Kansas City: HArrison 1-6618;
Rochester: HUbbard 2-2200.

● READOUT CENTER
■ SATELLITE EXCHANGES

See list of XY® Toll Ticketing communities, page 42


GENERAL DYNAMICS | TELECOMMUNICATION

These progressive communities have installed or ordered Stromberg-Carlson® Toll Ticketing.* Why don't you?

ARIZONA
Holbrook
- Pinetop
- Show Low
- Snowflake
- Springerville
- St. Johns

ARKANSAS
Fordyce
- Bearden
- Sparkman

CALIFORNIA
Bakersfield
Blythe
- Palo Verde
- Salome (Ariz.)

Burney
- Fall River Mills

Courtland
- Clarksburg
- Isleton
- Walnut Grove

Elk Grove
Exeter
- Lemon Cove

Garberville
- Alderpoint
- Covelo
- Laytonville
- Leggett
- Piercy

Livingston
Manteca
- Ripon

Patterson
- Wesley

Sanger
San Miguel
Susanville
- Chester
- Greenville
- Janesville
- Mineral

Weaverville
- Hayfork
- Hoopa
- Willow Creek

FLORIDA
- Clermont
- Kissimmee

Leesburg
Mt. Dora
Ocala
- Belleview
- Oklawaha
- Williston

IDAHO
Rupert
- Minidoka
- Norland
- Paul

ILLINOIS
Carthage
- Dallas City
- Hamilton
- LaHarpe
- Nauvoo
- Warsaw

Dixon
INDIANA
- Nappanee

Franklin
- Bargersville
- Marietta
- Nineveh
- Providence
- Trafalgar
- Whiteland

Monticello
- Chalmers
- Flora
- Rensselaer
- Wheatfield
- Wolcott

Plymouth
- Argos
- Bourbon
- LaPaz
- Leiters Ford
- Walkerton

Warsaw
- Atwood
- Burket
- Cromwell
- Etna Green
- Leesburg
- Mentone
- Milford
- Millwood
- Tippecanoe

IOWA
Creston
- Afton
- Corning
- Orient
- Prescott

LOUISIANA
Carlyss
MARYLAND
Ft. Meade (Main post)
Ft. Meade (NSA)
MISSOURI
Oak Grove
- Lake Lotawana
- Odessa

Rolla
- Salem
- Waynesville

NEBRASKA
Scottsbluff
- Bayard
- Broadwater
- Chappell
- Gering
- Lewellen
- Lyman
- Minatare
- Mitchell
- Morrill
- Oshkosh
- Guernsey (Wyo.)
- Torrington (Wyo.)

NEVADA
Fallon
Henderson
Yerington
- Smith

NEW JERSEY
Clinton
- Bloomsbury
- Califon
- Hampton
- High Bridge
- Lebannon
- White House

NEW YORK
Au Sable Forks
- Keeseville
- Wilmington

Corfu
Darien
East Pembroke
Westfield
- Brocton
- Findley Lake
- Mayville
- Ripley
- Sherman

NORTH CAROLINA
Monroe
- Alton
- Monroe Plaza "5"

OHIO
Aurora
Bainbridge
Chardon
Elyria
- Emerson
- Fairfax
- Glendale

Hiram
Hudson
Newbury
Northfield
Russell
Twinsburg
West Richfield
OREGON
Creswell
Hood River
Merrill
- Bonanza
- Lorella
- Malin
- Newell
- Tule Lake

Myrtle Creek
- Azalea
- Canyonville
- Days Creek
- Glendale
- Riddle
- Wolf Creek

Redmond
- Culver
- Sisters

Sheridan
- Grand Ronde
- Willamina

White City
- Butte Falls
- Eagle Point
- Prospect
- Shady Cove

PENNSYLVANIA
Albion
Bedford
- Claysburg
- Everett
- Fishertown
- Hopewell
- Schellsburg

Chambersburg
- Blue Ridge Summit
- Dry Run
- Fayetteville
- Greencastle
- Marion
- McConnellsburg
- Mercersburg
- Mont Alto
- Newburg
- Shippensburg
- St. Thomas
- Waynesboro

Export
- Delmont
- Harrison City
- New Alexandria

Hanover
- Biglerville
- Fairfield
- Gettysburg
- Littlestown
- New Oxford
- York Springs

Kittanning
- East Brady
- Elderton
- Ford City
- Rural Valley
- Worthington

Leechburg
- Apollo
- Templeton

Newport
- Duncannon
- Liverpool
- Loysville
- Millerstown
- New Bloomfield
- Thompsontown

West Springfield
TENNESSEE
Kingsport
- Church Hill
- Gate City (Va.)
- Halls Mills
- Sullivan Gardens

VIRGINIA
Edinburg
- Mt. Jackson
- New Market
- Strasburg
- Toms Brook
- Woodstock

Manassas
Wytheville
- Austinville
- Bland
- Ceres
- Marion
- Max Meadows
- Sugar Grove

WASHINGTON
Everett
- Bothell
- Duvall
- Granite Falls
- Halls Lake
- Kirkland
- Marysville
- Monroe
- Richmond Beach
- Skykomish
- Snohomish
- Sultan

Kalama
Lynden
- Acme
- Blaine
- Custer
- Deming
- Everson
- Ferndale
- Laurel
- Maple Falls
- Sumas

Mt. Vernon
- Burlington
- Coupeville
- Oak Harbor
- Sedro-Wooley
- Stanwood

*Installed or on order as of 10/23/61

ADVERTISEMENT

of the newly-elected president, John Collver of Climax.

Elected to serve as new directors of the Michigan association were: D. M. Davis of Bridgman; and Glenn Watterson of Brooklyn, succeeding respectively veteran directors John Sattler of Leelanau; and R. J. Schafer of Pinconning.

Reelected to serve on the MITA board were: Mr. Sage; Edwin L. Cadwell of Levering; K. W. Benckert of Muskegon, Mr. Collver; John Fox of Waldron; L. W. Reynolds Sr. of Ontonagon; A. H. Nickless of Millington; A. M. Spry of Howard City; D. K. Carlson of Morenci; P. E. Taylor of Pickford; C. D. McLellan of Lansing; and R. J. Daverman of Calhoun.

Elected to serve as officers of the Michigan association for '62 are: President, Mr. Collver; first vice president, Mr. Daverman; Mr. Reynolds, Upper Peninsula vice president; Mr. Benckert, treasurer, with Glen Swartzlander chosen as his assistant; and Mr. McLellan, secretary and executive vice president, with Lee Magoon whom Mr. McLellan chose as the assistant secretary.

Moriarty Named O. Distributor Kwik-Mix Div., Koehring

Howard T. Moriarty Co., Toledo, O. has been appointed exclusive distributor for Ka-Mo products in northwestern Ohio according to an announcement from the Kwik-Mix Co., a division of Koehring Co.

The Moriarty firm will sell and service the complete line of Ka-Mo earth-boring and drilling equipment which includes Ka-Mo air, hydraulic, electric, and gasoline boring machines.

Howard T. Moriarty is president and general manager, and Thomas Moriarty is assistant sales manager of the firm, which is located at 137 Broadway, Toledo 4, O.

PBX assistance program pays off for Ohio Independent

IN RESPONSE to requests from industrial and commercial subscribers for service instruction and assistance to their PBX operators, the Lorain (O.) Telephone Co. recently appointed a PBX service adviser and initiated a training program for PBX attendants and PBX extension users.

All PBX subscribers were informed of the program and, according to Carl F. Olson, director of personnel and public relations, they have been quick to utilize the services of the PBX service adviser, Mrs. Adah Wargo, in the training of their operators and personnel.

In addition to personal visits to PBX subscribers, Mrs. Wargo conducts four-day group meetings of PBX operators and PBX extension users in the Lorain Telephone Co. office.

Mr. Olson summarizes the agenda and the results of the group meetings as follows:

" 'Answer your telephone promptly, but not before you are ready to speak', advises Mrs. Wargo, as she speaks to groups from PBX subscribers. This is only the beginning of her 20-minute talk.

"Other important points covered include (1) identify yourself when answering or calling; (2) courtesy is contagious; (3) eliminate telephone wastes; (4) handle complaints tactfully; (5) make calls correctly; (6) develop a courteous telephone manner; (7) direct distance dialing, and (8) hold that line.

"Each point is brought to the listener by an 8½ x 11 feature card which is illustrated with a cartoon character. There is a subscriber rushing to reach the telephone, illustrating point one—a young man with the mumps; they are contagious too, it is pointed out. Another cartoon shows a man dialing blindfolded to illustrate the point of making calls correctly; and, last but not least, a football helmeted man 'holding that line'.

"Each main title has two or three sub-titles that are also discussed. A question and answer period always closes the program. Over 500 extension users have been covered by this service in the past year.

"One hundred seventy-five visits to over 50 PBX, PABX switchboards have been made. All attendants were made acquainted with the mark sense toll tickets used by the toll operators, so that they would have a better understanding of the proper procedure of placing long distance calls.

"Problems that might affect a particular department were referred to that organization as they were brought to the service adviser's attention.

"A total of 28 individuals were trained to operate new or different types of switchboards and at least 25 more were given personal instructions on such items as holding calls, use of conference circuits, flashing, telephone manners, etc.

"Individual visitation reports were made following each visit. On this report are all pertinent facts that relate to that particular visit. A company record is also kept for each switchboard. From this record, one can tell at a glance the type of board, number of trunks, number of stations, attendant's name and relief operators, name of person in charge, visitation dates and remarks.

"A 'PBX Attendant's Night' was held for all switchboard operators. Because of the tremendous response, it was necessary to hold the party two nights. The young ladies were greeted

(Continued on page 43)

Mrs. Adah Wargo, PBX Service Adviser of the Lorain (O.) Telephone Co., giving instructions to a PBX operator.

Different people want different phones

PAYSTATION
Sheet steel housing takes the roughest treatment. Close-fitting coin box door can't be pried open, foils burglars. Magnetic slug ejector for 25¢ channel. Choice of 10 colors.

AE makes a phone for every customer need

TYPE 85-C DESK PHONE
For two-line pick-up, signaling and extension exclusion. Ideal for nurse, receptionist, secretary. Simple turn button switches from one line to another. Choice of 10 colors.

Each person in your area has specific telephone needs. The service-station operator must provide motorists with the convenience of a pay-station. In a laboratory, the nurse needs a two-line desk phone. You can sell both...

To meet the needs of different customers, you must provide many types of phones—standard *and* special. Why? Because it's profitable! The customer who wants a special phone pays extra for the extra service.

Any new customers in your area? Any old ones with new telephone needs? If so, show them the AE phone best suited to their particular needs. Contact your AE representative. He'll be glad to give you full details on our complete line of telephone services and related instruments. Only AE offers 15 different phones to meet different customer needs.

AUTOMATIC ELECTRIC
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

by company officials before being taken on a guided tour of the telephone company facilities. The guests visited the data transmission, commercial, switchroom, and traffic departments, with the latter department creating the most interest for them as they saw many of the long distance operators they had only known by voice. A social hour closed both evenings with a total of 102 guests attending, representing 50 different companies.

"When the director of a local beauty school requested telephone training for her students, an hour-long program was given with the use of a demonstration unit consisting of two color telephones providing two-way telephone conversation between the instruments. The conversation was amplified and broadcast through a loud speaker so that the entire class of some 60 men and women could participate in a group discussion of techniques.

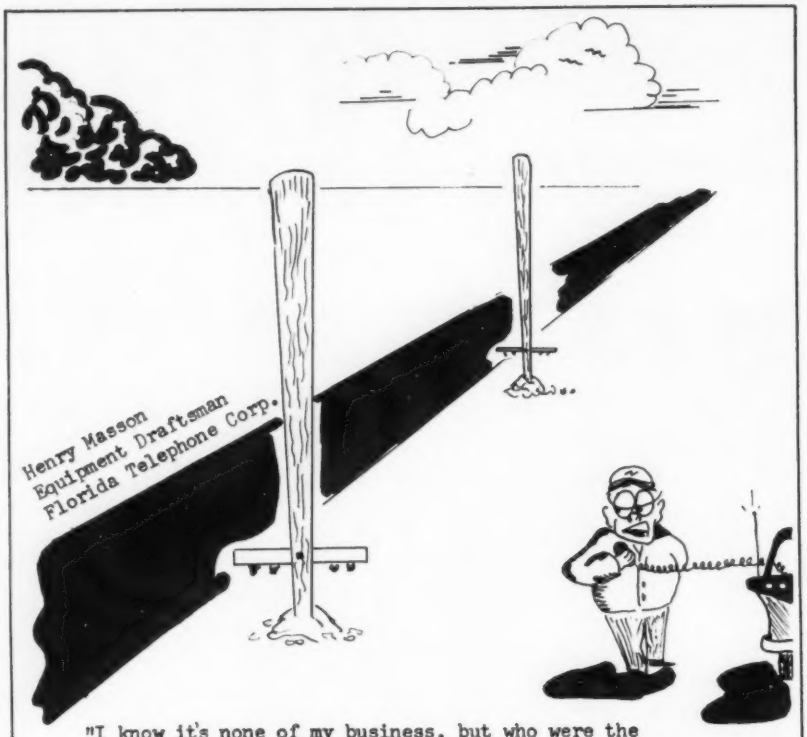
"Seven cases of the right way and the wrong way were read with the students taking part in the short dramas. The cases covered as follows: (1) Taking an appointment; (2) schedule full; (3) called party busy; (4) not readily available; (5) taking a message; (6) called party out; (7) handling a complaint.

"This program brought about the realization that something should be done with the students at the high school so that they could be shown the proper telephone technique before going out into the business world. Upon talking with the local school people, the service adviser contrived a four-day program to discuss telephone communications.

"Two one-hour classes of approximately 60 senior girls of the advanced shorthand class were shown the proper way to hold the instrument, the correct dialing procedure, and the reason for hanging up gently.

"Enunciation, tone of voice, and courtesy were stressed. The students were advised to put a smile in their voice—that an expressive voice will carry their personality over the wire. They were cautioned with that old Shakespeare adage, 'Mend your speech a little, lest you may mar your future.'

"Again the demonstration unit was used. The two color instruments provided two-way telephone conversation between the telephones with the loudspeaker broadcasting the conversation. The class took part by reading the scripts provided from eight cases of the right way and the wrong way of (1) requesting information; (2) a call handled by a secretary—employer not in; (3) a called party talking on another line; (4) a called party not readily available; (5) a called party is out; (6) a called party talking on another line—memo passed; (7) a call handled by a secretary when the employer is not to be disturbed; and (8) a long distance call.



"I know it's none of my business, but who were the comedians setting poles here on Route 333 this morning ?"

"The next day a cordless switchboard connected with two trunks, two extension telephones, an outside line, and the attendant's telephone, was set up. An attempt was made to show the operation of the switchboard, with the class taking part by operating the switchboard and the extension telephones. The group participated in three practice cases—the right and wrong way of (1) transfer of calls; (2) giving a message; (3) extending to extension.

"Illustrations of the different types of switchboards were shown and identified with local users.

"The third day, a service engineer of the Lorain Telephone Co. presented an illustrated talk on the operation of the Dial-A-Phone, the Electronic Secretary, loudspeaker telephone and the key telephone. Opportunity to use the instruments was open to all, and some local calls were made by the girls. The groups found the key telephones extremely interesting and many questions were asked. The girls were very original in their thinking as they carried on their own business conversations.

"To close the four-day program the two classes met at the Lorain Telephone Co. office where they were taken on a tour of the company's facilities. Company officials and department heads welcomed the guests.

"The superintendent of outside plant and a commercial office representative each gave a brief resume of his department's work.

"The guests were then divided into four groups for the tour, spending about 15 minutes in each of four divisions—data transmission, traffic, commercial, and switchroom. The group was also shown the company PABX.

"Following the tour, the assembly was shown a movie entitled, "Voice of Your Business," which completed the lesson in communications.

"As a direct result of this program, it is known that one of the girls in the class is now the PBX attendant for a local newspaper office; one girl is employed in the toll room of the Lorain Telephone Co., and two others have applications for positions registered with the director of personnel.

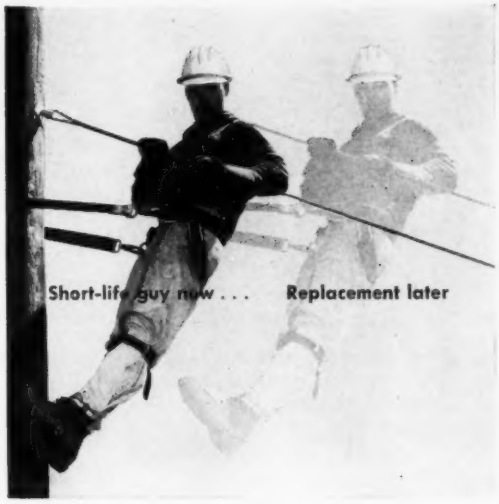
"Good public relations is the most important part of the PBX service adviser's job, whether it be at the adult level or the student level. We are anxious to reach all who use the telephone."

Are you paying for

TWO GUYS

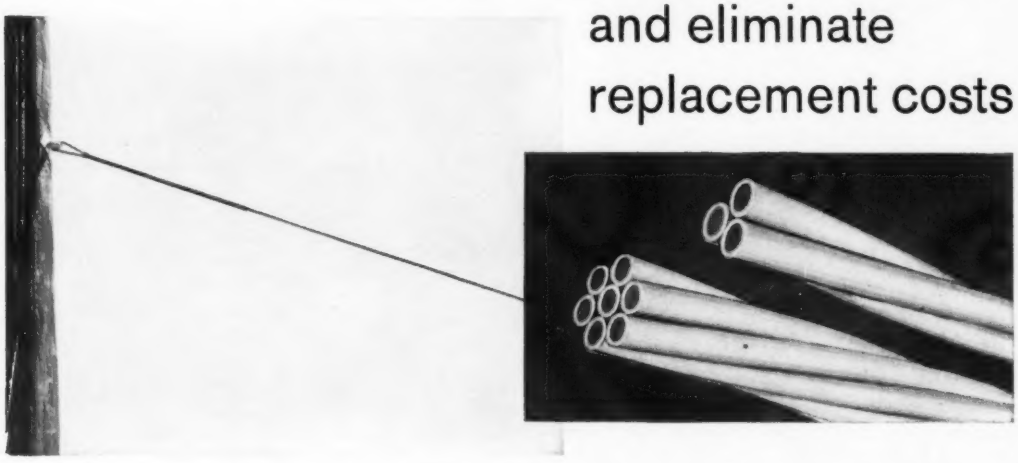
During the life of

ONE POLE?



INSTALL **ALUMOWELD® STRAND** ONCE

and eliminate replacement costs



There's no built-in replacement cost to be paid later when you buy Alumoweld Guy Strand. Alumoweld matches the long life of modern poles, as a guy strand should. It stays up and retains its strength, unimpaired by years of exposure to the elements, because an *extra-thick* aluminum covering (25% by area) protects the steel core from rusting.

Size for size, Alumoweld Guy Strand has the same tensile strength as extra-high-strength steel . . . weighs less . . . is easier to install . . . and will last far longer.

Why pay for two guys during the life of one pole when one Alumoweld Guy will do the job and save you money and trouble? For your convenience, stocks of Alumoweld Strand are available for immediate shipment from our warehouses in New York, Chicago, Pittsburgh and Memphis.

COPPERWELD STEEL COMPANY WIRE AND CABLE DIVISION, GLASSPORT, PA.

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

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ALUMOWELD **GUY STRAND**

Courts and Commissions

Ind. Bell Asks General Pay Tolls, Pending Settlement

Oral arguments on Indiana Bell Telephone Co's petition for immediate relief from withholding by General Telephone Co. of Indiana of revenues from interchanged toll were heard by the Indiana Public Service Commission on Nov. 7 (TELEPHONY, Sept. 23).

General telephone attorneys argued that the commission—which has no power to issue orders fixing temporary compensation—is without authority to make the interim ruling sought by Indiana Bell.

Counsel for the petitioner said the Indiana Bell plea for standby relief is worded in such a way as to make it fully within the province of the commission to act.

Indiana Bell has asked the commission for an order requiring General not only to repay to Indiana Bell the sum it has withheld in monthly toll settlements since last June, but to continue making such payments monthly until the commission can conduct a full hearing and order a permanent basis for settlement. Indiana Bell asked that the terms of a 1956 agreement be the basis for interim payments.

The oral arguments summed up briefs and answer briefs filed by both companies since testimony was presented before the commission on Sept. 12.

Approve Dial Raise for SW States, EAS to Tex. Co-op

The city council of San Saba, Tex., on Oct. 18, accepted a new rate schedule for the Southwestern States Telephone Co., Brownwood, effective on conversion to dial service; and agreed on the establishment of toll-free service between its San Saba and Richland Springs exchanges and the Bend, Cherokee and Locker exchanges of the Central Texas Telephone Cooperative, Inc., Goldthwaite.

In Jan., 1960, Southwestern States proposed a rate increase, including an interim increase and another effective on cut-over. According to the agreement with the city council, there will be no interim increase.

The following rate schedule was approved for dial service, expected to be in operation in 1962.

	Present	*Dial*
One-party business	$6.00	$11.00
Two-party business	5.00	9.00
One-party residence	3.00	5.00
Two-party residence	2.50	4.00
Four-party residence	2.25	3.25

Carolina T & T Seeks Stock Issue to Retire Loans

Carolina Telephone & Telegraph Co. of Tarboro asked the North Carolina Utilities Commission on Nov. 3 for authority to issue 195,039 shares of its common stock at not less than its $20 par value to raise funds with which to retire short-term bank loans it has incurred in its expansion program.

The company said the stock will be offered first to its present stockholders at the rate of one new share for each 10 shares they own. Stock not subscribed by stockholders will be offered for sale at approximately its market value.

Approve Sale of Wisconsin Cooperative, Plan EAS

The Little Sturgeon Telephone Cooperative has been given permission by the Wisconsin Public Service Commission to sell to W. J. Gottstein, doing business as the Forestville Telephone Co., it was reported on Oct. 25 (TELEPHONY, Aug. 5).

The Little Sturgeon cooperative has about 160 subscribers. The Forestville company serves 620 subscribers through exchanges at Brussels and Forestville.

After Little Sturgeon is converted to dial, extended area service is planned between the Little Sturgeon exchange, Brussels, Forestville and the Sturgeon Bay exchange of the Wisconsin Telephone Co.

Grant Dial Raise in Kansas

The Kansas Corporation Commission on Nov. 1, granted Center Township Telephone Co., Olpe, an annual rate increase of $4,963. The company, which has 239 subscribers, is converting to dial service.

General of SW Gets Raises At Four Texas Exchanges

The following rate increases became effective in Texas exchanges of General Telephone Co. of the Southwest during October 1961:

		Old	*New*
Claude,	*Business*		
dial,	One-party	$ 9.00	$10.00
401 stations,	Two-party	7.25	8.00
Oct. 26.	*Residence*		
	One-party	5.00	5.50
	Two-party	4.50	5.00
	Four-party	3.75	4.00
Forsan,	*Business*		
dial,	One-party	9.00	11.00
107 stations,	Two-party	7.00	9.00
Oct. 21.	*Residence*		
	One-party	5.00	6.00
	Two-party	4.00	5.00
Seymour,	*Business*		
dial,	One-party	10.50	11.00
1,929 stations,	Two-party	8.75	9.25
Oct. 16.	*Residence*		
	One-party	5.25	5.75
	Two-party	4.40	4.70
	Four-party	3.75	4.00
Whitharral,	*Business*		
dial,	One-party	9.50	11.00
127 stations,	Two-party	7.50	8.00
Oct. 11.	*Residence*		
	One-party	4.75	5.25
	Two-party	4.00	4.50

Split Decision Leaves Indiana Long Distance Raise in Effect

A split decision of the Indiana Appellate Court has left a 1958 increase in all long-distance telephone rates throughout the state in effect, it was reported on Nov. 13 (Telephony, May 28, 1960).

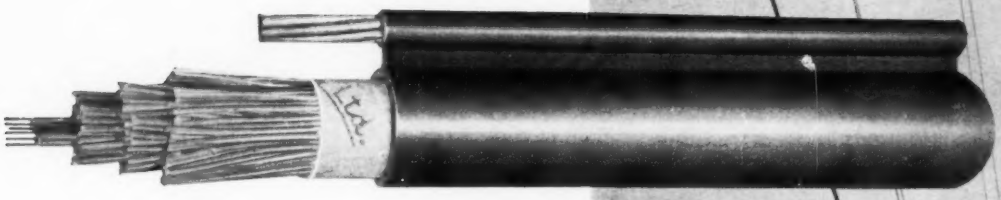
The case involved the question of whether the Indiana Public Service Commission could raise long-distance rates for all telephone companies in the state when only Indiana Bell Telephone Co. had petitioned for a rate increase.

This current action was the second 4-4 decision by the court in the case. Earlier, the court asked the Indiana Supreme Court to decide the issue, but the high court declined to do so and remanded the case to the lower court.

The commission in 1958 had granted a 33 per cent rate raise for long distance calls to Indiana Bell Telephone

HITACHI

This is the Gourd-type cable — a new shape that contains a suspension strand, a communication line, and the answer to several problems!



This unique local or exchange area cable developed by Hitachi derives its distinctive "gourd shape" from the polyvinyl chloride sheathing that totally encloses the polyethylene-insulated communication line as well as its parallel suspension strand. It can be used in all the applications of conventional PE-insulated PVC sheathed cable and, in addition, is suitable for installation on steep grades where paper-insulated lead sheathed cable could not be used.

Another notable feature of the gourd-shaped cable is that it dispenses with the need for hangers, making installation easier, cheaper and faster. It can be installed close to buildings and power lines with complete safety (the suspension strand can be grounded to reduce electrostatic induction in the latter instance), retains high transmission qualities under the most trying weather conditions, and successfully withstands attack by salt or airborne chemicals.

Communication Equipments

Hitachi, Ltd.
Tokyo Japan
Cable Address: "HITACHY" TOKYO

Co., and, at the same time, ordered similar rate raises for the other 185 telephone companies in the state.

The increased rates went into effect in April 1958.

Nev. Independent Asks Raise To Finance Expansion

The petition of the Henderson Telephone Co. for a rate increase, to yield additional annual revenue of approximately $50,900, came before the Nevada Public Service Commission on Oct. 26 (TELEPHONY, Jan. 7).

The company's current request would raise the yield on its investment from 3.86 per cent to 6.5 per cent. It is the Henderson company's second rate request this year.

Present and proposed rates are as follows:

	Present	*Proposed*
Business		
One-party	$9.50	$15.00
Two-party	7.50	10.00
Residence		
One-party	5.85	6.50
Two-party	4.35	5.25
Three-party	3.85	4.50
Four-party	3.35	4.00

Hershel Trumbo, president of the company, stated that obsolete equipment made improvements and expansion necessary. He revealed that the company plans expansion over a period of five to six years amounting to $220,000. He also referred to the fact that rapid population growth will necessitate the hiring of additional personnel.

Sentence Two In Blasting of Desert Microwave Stations

Two men, who pleaded guilty to destroying telephone microwave towers, were sentenced to eight years in prison on Nov. 2 in Federal District Court in Carson City, Nev. (TELEPHONY, Nov. 4).

Bernard Brous and Dale Jensen had admitted that on May 28 they blew up two Bell System microwave stations—at Cedar Mountain, Utah and Wendover, Nev. and a Bell System cable repeater station at Knolls, Utah.

The government dropped sabotage indictments after the two pleaded guilty to conspiracy and obstructing vital communications.

They still face a 2.75 million dollar damage suit for damage to Bell System property.

OK Minn. Stock Transfer

The Minnesota Railroad & Warehouse Commission on Nov. 7 gave permission to Mille Lacs Telephone Co. to transfer all of its common stock, 380 shares, to Continental Telephone Co. in exchange for 28,000 shares of Continental's common stock.

The Mille Lacs stock is held by Dell Ludenia, Ethel A. Ludenia and Harvey W. Knutson.

Approve Purchase of Three In Illinois, OK Cut-Over

The Illinois Commerce Commission on Nov. 10, authorized County Telephone Co., a newly formed Illinois corporation, to purchase Ingraham Telephone Co., Passport Telephone Co. and Wakefield-Mendelin Telephone Co. and to operate in and around the villages of Ingraham, Passport, Wakefield, and Mendelin (TELEPHONY, Sept. 23).

The purchasing company advised the commission it will construct a new dial exchange at Mendelin to serve that area.

Neb. Commission Authorizes Sale of Two Companies

The Nebraska Railway Commission on Oct. 31 approved the sale of all outstanding common stock of the Cuming County Telephone Co., Wisner, owned by J. E. Nelson and Paul D. Dunlap, to the Continental Telephone Co., St. Louis, Mo. (TELEPHONY, Oct. 28). The company serves exchanges at Wisner and Beemer.

The Continental Telephone Co. has offices in St. Louis. It was organized for the purpose of acquiring and owning shares of stock in Independent telephone companies.

The commission's order approves the sale and transfer of 12,000 shares of $10 par value common stock of the Cuming County company for 40,000 shares of $1.00 par value common stock of the Continental company, effective Nov. 1.

•

On Nov. 3, the commission approved the sale of the Miller Independent Telephone Co., to the General Telephone Co. of Nebraska, Columbus (TELEPHONY, Oct. 7). The General company proposes to convert the exchange from magneto to dial service. Extended area service is now provided between Miller and the Amherst exchange of the General Telephone Company and this service will be established also between Miller and the General company's Sumner exchange upon conversion to dial.

Authorize New Rates for Six Exchanges of Neb. Company

The Nebraska Railway Commission on Nov. 3 granted in part an application for increased rates by the Nebraska Central Telephone Co., Gibbon.

Except for business rates at Sargent

Convention Calendar

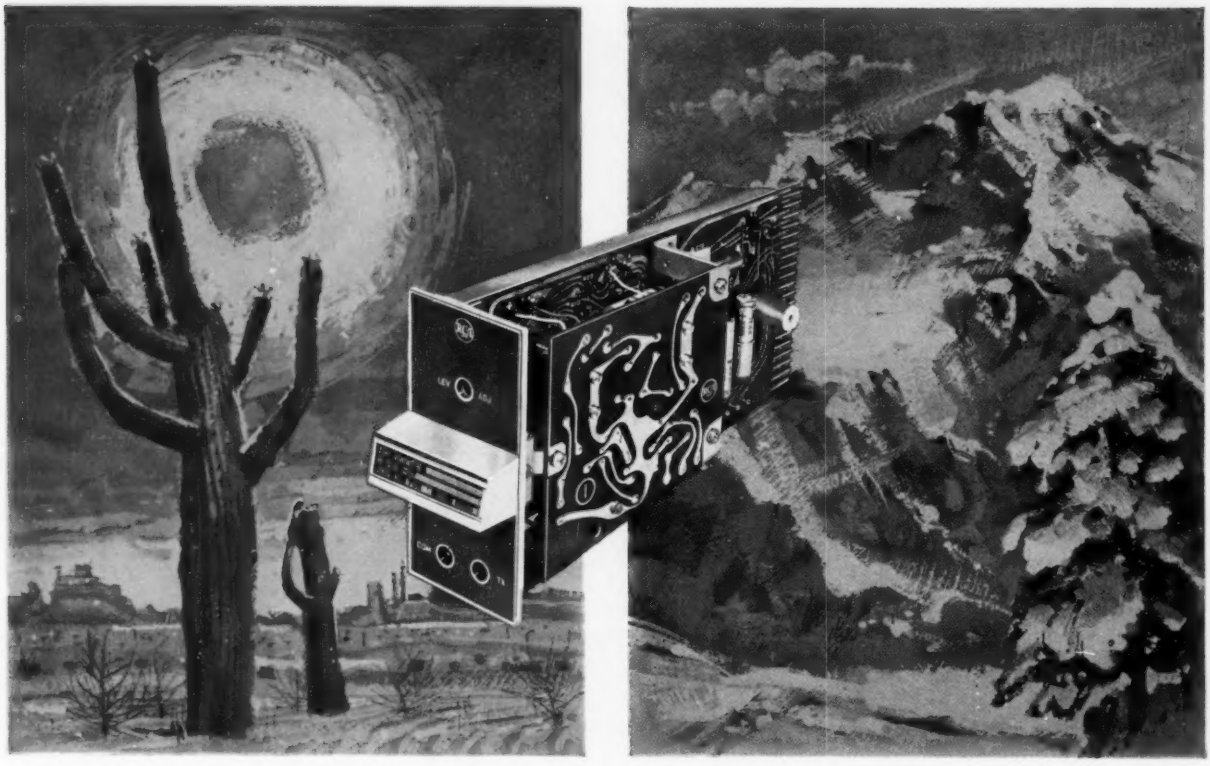
1961

Association	*Date*	*City*	*Hotel*
Florida	**Nov. 26, 27 and 28**	**Miami Beach**	**The Carillon**
North Carolina	**Dec. 4 and 5**	**Pinehurst**	**Carolina**

1962

Minnesota	**Feb. 25, 26, 27 and 28**	**Minneapolis**	**Radisson**
Louisiana	**Feb. 28; Mar. 1**	**New Orleans**	**Monteleone**
Kentucky	**Mar. 6**	**Lexington**	**Phoenix**
Texas	**Mar. 11, 12 and 13**	**Dallas**	**Sheraton-Dallas**
Iowa	**Mar. 19 and 20**	**Cedar Rapids**	**Roosevelt**
Ohio	**Apr. 3 and 4**	**Columbus**	**Deshler Hilton**
Nebraska	**Apr. 18 and 19**	**Omaha**	**Sheraton-Fontenelle**
Wisconsin	**May 8 and 9**	**Milwaukee**	**Plankinton**
Indiana	**May 9 and 10**	**Indianapolis**	**Claypool**
Kansas-Missouri*	**May 21 and 22**	**Kansas City, Kan.**	**Town House**
Illinois	**May 24 and 25**	**Springfield**	**Abraham Lincoln**
Pennsylvania	**June 4, 5 and 6**	**Bedford**	**Bedford Springs**
New York	**June 11, 12 and 13**	**Whiteface**	**White Face Inn on Lake Placid**
California	**June 13 and 14**	**San Francisco**	**Jack Tar**
Washington-Oregon*	**June 21 and 22**	**Portland, Ore.**	**Sheraton**
USITA	**Oct. 22, 23, and 24**	**Chicago**	**Conrad Hilton**

***Joint meeting**



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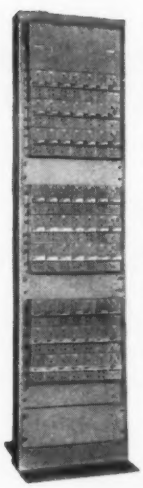

Tropic heat . . . arctic cold . . . sustained periods of moisture. New CT-42 provides accurate, reliable tone transmission under the widest range of environmental conditions.

Built-in performance assures reliability where you need it the most! Computer grade components and rugged, modular construction provide lasting dependability to not only withstand the rigors of extreme climatic changes, but also to stand up under the grind of continuous service.

For teletype, signaling functions, control or data transfer, each channel can be frequency-shift or AM keyed. Six transmitters or receivers in any combination may be plugged into a standard shelf that also contains a husky, regulated power supply.

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and Ansley, the present rates were established in 1952.

The company serves about 2,500 company-owned stations and 121 service stations, and all exchanges are dial operated.

Extended area service is provided as follows: from Ansley to Mason City exchange of Northwestern Bell Telephone Co.; from Comstock to Sargent; from Gibbon to Shelton; from Sargent to the Taylor exchange of Rodeo Telephone Membership Corp. and Nebraska Central's Comstock exchange; and from Shelton to Gibbon.

	Old	*New*
Ansley		
One-party business	$7.00	$7.75
Two-party business	6.00	6.75
Rural business	4.50	5.50
One-party residence	3.50	4.75
Two-party residence	3.00	4.00
Four-party residence	2.50	3.25
Rural residence	3.50	4.50
Arcadia		
One-party business	6.00	7.25
Two-party business	5.00	6.25
Rural business	4.50	5.00
One-party residence	3.50	4.25
Two-party residence	3.00	3.50
Four-party residence	2.50	2.75
Rural residence	3.50	4.00
Comstock		
One-party business	6.00	7.75
Two-party business	5.00	6.75
Rural business	4.50	5.50
One-party residence	3.50	4.75
Two-party residence	3.00	4.00
Four-party residence	2.50	3.25
Rural residence	3.50	4.50
Gibbon		
One-party business	6.00	8.00
Two-party business	5.00	7.00
Rural business	4.50	5.75
One-party residence	3.50	5.00
Two-party residence	3.00	4.25
Four-party residence	2.50	3.50
Rural residence	3.50	4.75
Sargent		
One-party business	7.00	8.00
Two-party business	6.00	7.00
Rural business	—	5.75
One-party residence	3.50	5.00
Two-party residence	3.00	4.25
Four-party residence	2.50	3.50
Rural residence	3.50	4.75
Shelton		
One-party business	6.00	8.00
Two-party business	5.00	7.00
Rural business	4.50	5.75
One-party residence	3.50	5.00
Two-party residence	3.00	4.25
Four-party residence	2.50	3.50
Rural residence	3.50	4.75

The new rates will produce an estimated gross annual revenue of $179,214. Operating expenses are estimated at $113,300, plus an amount for taxes, interest and other general expenses of $30,590, or a total expense of $143,890. This will produce an annual income of $35,324, less federal income tax of $12,868, leaving a net profit of $22,456. This amount, plus $17,090 for interest, will total $39,546 for dividends and interest. This will produce a rate of return of 6.62 per cent on a net book rate base of $604,129, or 4.8 per cent on the current value rate base of $833,500.

Register Cal. Bond Issue

General Telephone Co. of California has registered a 25-million-dollar issue of 30-year first mortgage bonds with the Securities & Exchange Commission, it was reported on Nov. 10. These bonds are to be offered for public sale at competitive bidding.

Order EAS with Bell in N.C.

Carolina Telephone & Telegraph Co., Tarboro, has been ordered by the North Carolina Utilities Commission to proceed immediately to provide extended area service to subscribers in the Pikeville-Freemont area of north-

ern Wayne County. EAS will be offered on a direct line with Southern Bell Telephone Co.'s Goldsboro exchange.

Ark. Company Asks Dial Raise for Four Exchanges

The Mountain Home Telephone Co. on Nov. 2, asked the Arkansas Public Service Commission for a rate increase at Norfork, Henderson, Lakeview, and Gamaliel. A hearing on the request has been set for Nov. 28.

The rates, on approval, are to become effective as soon as the company converts to dial operation.

D. O. Hood of Oregon Independent Dies

DELLMAN O. HOOD, 74, died on Oct. 28 at the Rogue Valley Memorial Hospital in White City, Ore.

Mr. Hood was active nationally in telephone interests, having served as a director of the United States Independent Telephone Association for many years.

Also, he served from 1942 to 1948 as president of the Oregon Independent Telephone Association and was a director for many years.

During his long career, Mr. Hood had engaged in a variety of enterprises, but he began his work in the communication field in 1903 when he started in business as an operator for the Postal Telegraph Co. in Charlotte, N.C. He later became a Morse operator for the Associated Press.

D. O. HOOD

In 1920, with his brother Ernest, he started the brokerage firm of Hood Brothers in Portland, Ore.

Ten years later, he entered the telephone business with the purchase of a telephone company at Eagle Point, Ore. The company which he built up, Columbia Utilities Co., was serving more than 5,000 stations in 1959, when Mr. Hood merged his holdings with the Oregon-Washington Telephone Co. and became a director of that company.

In addition, Mr. Hood was at one time a member of the Port of Portland Commission, and had also served as budget director of Oregon under Gov. Charles H. Martin.

His military service was with the U.S. Signal Corps in World War I. He saw combat action, and emerged from the war as a major and c.o. of his battalion.

He is survived by his widow, Elizabeth V. Hood.

Hard to Hide

"He is a strong man who can hold down his opinion. A man cannot utter two or three sentences without disclosing to intelligent ears precisely where he stands in life and thought, namely whether in the kingdom of the senses and the understanding, or in that of ideas and imagination, or in the realm of intuitions and duty."—EMERSON.

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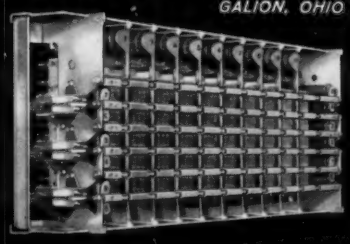


THE OPERATOR'S CORNER

By MAYME WORKMAN, Traffic Editor

ARE YOU HAPPY in your work and content, or are you one who has become so intrigued with the idea of a job switch that you are always on the lookout "just in case?" Are you convinced that you are trapped in a deadend rut and will leap at the first offer that comes along? In either case, you are not likely to do yourself much good.

The constant horizon watcher is so busy scanning, that she misses the opportunities closest at hand. The quick changer moves so fast that she often lands in a spot worse than the one she has left. So she shifts again, and runs the risk of being dubbed a job-hopper, a reputation that has stunted many a promising career.

When the yen for a change overtakes you—and it comes on nearly everyone at one time or another—lean back and take a good look, not only at the opportunities that may lie elsewhere but at the job you are in and, more important, at yourself. Should you really be looking for another spot? That's the central question you want answered.

The way to begin your search for clues is to take the measure of the job you have. Start by laying down your own yardstick. Write out what you think ought to be the essential ingredients of a good job . . . for example, good pay, interesting work, steady advancement and security. Arrange the items in their importance to you. Then, check your own job, point by point, and see how it measures up.

You can't expect your job to be perfect. No job is. But it should check out well on the top items on your list —since they are the things you want most—and it should look good on overall balance.

As telephone employes, let's see how we stack up on the essential ingredients of a good job.

(1) *Good pay.* Surely we agree that today the pay of telephone operators is good.

(2) *Interesting work.* We are high on the list here, too.

(3) *Steady advancement.* The opportunity is available, and it is up to us to measure up to it.

(4) *Security.* As a whole, we are high on the list here, with sickness and disability benefits, pensions (noncontributing), etc.

The foregoing is an objective analysis of your job. You've judged it by your personal standards, which, of course, are what count the most in a final decision.

For an objective view, take another look at your job, this time through the eyes of a career adviser, who would rate it on the following points:

Progress—To be happy, most people must continue to grow and learn. This explains why the most successful persons sometimes get restless on the job—they outgrow it.

A good position will call more and more of your abilities into play. It will give you opportunities to expand your knowledge, thus increasing your value to yourself. As your ability grows, the job itself should grow, and the chances of getting pay raises and broader duties should increase.

Income—A good job pays a good salary, of course. It also offers increases as your value grows. But before you draw conclusions about your own job, know what other firms pay for similar work and experience. In making income comparisons, count in such fringe benefits as health insurance, pension funds, etc.

The search for more money is one of the most common reasons why people switch jobs. Yet, taken by itself that motive can be a pretty treacherous one. A move from a generally satisfying position to one that pays more, but turns out to be less rewarding otherwise, can be mighty frustrating.

This reminds the writer of a young lady who had a good position with a large insurance company in pleasant surroundings which offered many fringe benefits. She was lured away with an offer of a higher salary, and soon learned the folly of her decision. The new job was less rewarding, and did not offer those important "extras" that mean so much these days. She was successful in again obtaining a position with the insurance company, but at lesser pay, as her position had been filled. She lost much valuable time by making a rash decision.

Security—You want to be reasonably sure your job will be yours as long as you do it well. It is hard to perform at your best in the shadow of the budget ax. It is just as hard to work for the kind of boss who thinks that "the way to keep people on their toes is to keep them guessing."

Your job is okay on this point, if you feel reasonably secure, and you know your abilities are being used to good advantage.

Satisfaction—If you are enjoying your job, think long and hard before you leave it. Getting pleasure out of your work is one of the best things you can hope for.

If the job seems dull and useless, better know what's wrong. The cure may be not a new position, but a new outlook on your part.

Traffic Questions

(1) If an inward and through operator receives an order over a toll circuit from an operator for a place to which the switching of through calls is not authorized; or she receives dialing directions for a place or a numbering plan area to which she is not authorized to complete intermediate dialing calls; or she receives an order over a circuit group from which she is not authorized to receive through calls, what should she say?

(2) If an inward and through operator receives an order over a toll circuit for a through connection, either from a subscriber or from an employe

other than an operator, what should she say?

(3) If an operator receives an order for a through connection from anyone whom she believes may not be an operator, how does she proceed?

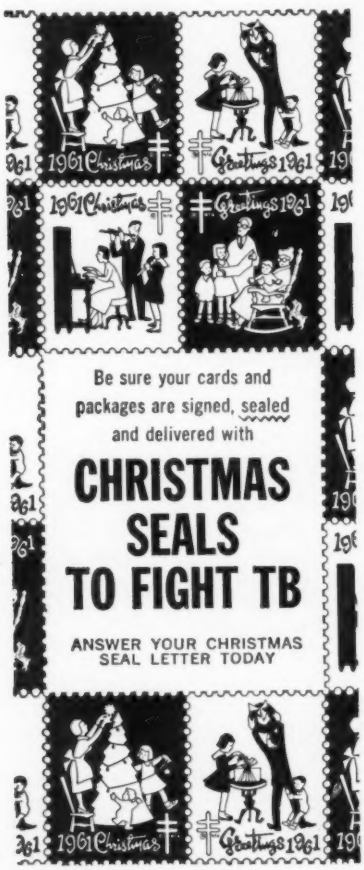
(4) If the party is an operator, what question should be asked?

(5) If an inward and through operator has completed a connection on an order received for a through connection, and she is still doubtful that the person making the request is an operator, how should she proceed?

Answers to questions are on page 67.

Grave Responsibility

"Public money ought to be touched with the most scrupulous conscientiousness of honor. It is not the product of riches only, but of the hard earnings of labor and poverty. It is drawn even from the bitterness of want and misery. Not a beggar passes, or perishes in the streets, whose mite is not in that mass."—Titmus Tidings.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Nevadans Concerned With

"The Future's Changing Face"

By DIANNE P. DRUCKER

THE CONCEPTS behind the new products being offered by the telephone industry, not the products themselves, will enable telephone companies to "cope with the changing face of the future," Lowell F. Wingert, vice president, operations, the Pacific Telephone & Telegraph Co., informed those attending the Nevada Telephone Association's convention.

The Nevadans held their meeting on Sept. 19, 20 and 21 in Elko. Ray Morgan of Gardnerville presided. Approximately 175 telephone people attended.

Mr. Wingert's speech, "New Services," brought home to telephone companies the permanence of one thing—change. He said: "Because of change, of accelerated innovation, the products and services that we talk about as being new today are of little more than passing importance. In a few years many of them will seem old-fashioned and out of date."

The public, he stated, has been growing and changing. He continued: "No matter how new or good the service offered, the customers invariably want more flexibility, more speed, more capacity, more simplicity. And all this at a lower cost to them. How do we meet this challenge?"

Mr. Wingert emphasized that this challenge could be met by having "a broader concept of the business of communications." He continued: "We need to be able to handle information in any form that may be entrusted to us."

These forms, he pointed out, can include the specialized languages of chemistry, mathematics, politics, defense and business. Each of these fields has its peculiar products and special demands. New products and services are being offered to fill these needs.

"Some of these products," Mr. Wingert continued, "have a limited application now, but the concepts behind them are of tremendous long-range importance. The first of these concepts is: Customers should have a wide choice of service."

In this connection, he mentioned a panel telephone which will be mounted directly in the wall and the Touch Tone telephone—a set in which pushbuttons replace the dial.

He reported that in one town where Touch-Tone is being tried, two months after selling began, four out of every 10 telephones installed were Touch Tone sets.

The second key concept that must be considered in planning new products, Mr. Wingert said, is "a continually expanding communications service." This means, he explained, "making communications facilities readily available to our customers."

A good example of this, he stated, is the Dataphone. He informed his audience that "the set we are now installing sends up to 1,600 words per minute. Before long we'll be introducing a new model that will handle some 3,000 words a minute."

Another product that corresponds with this second key concept is Bellboy, the personalized signaling system.

To fit in with Bellboy, Mr. Wingert said, telephones must be readily available nearby. Therefore, a whole new array of public telephone booths is being designed and installed.

He then mentioned the third product concept, "The communications package."

He explained that the first of these packages was the Home Interphone, which offers door-answering and intercommunications between several telephones.

In product tests of this service, 87 per cent of those taking part in the test said they liked both the product and the price, Mr. Wingert reported. He stated that thirty-eight per cent of the families that bought this service had gross incomes of less than $8,000 a year.

The second interphone package offered is the Farm Interphone.

"These two packages," Mr. Wingert said, "have created so much interest and favorable response, that we are already at work on another interphone for businesses, as well as a number of other coordinated services like the dial PBX arrangement we call Centrex."

The last product concept, Mr. Wingert mentioned, was that of a larger and more versatile nationwide network.

He cited two examples of this: Wide Area Telephone Service and Telpak. Another advance is the electronic central office now being tested at Morris, Ill.

Taking a look ahead at the 21st century, Mr. Wingert stated that "Population experts tell us that cities will be almost a thing of the past. . . . Instead we will be living in what they call Exurbias—giant developments which will sprawl across huge regions of land with little in common with our present city and state boundaries. It may be simpler for people—under such conditions—to work at home and keep in touch with their offices by using a whole new range of as yet undeveloped communications devices. . . . Until recently our greatest problem in handling such growth has been in the area of over-land transmission. But this has been largely solved by the development of broadband systems, providing thousands of channels with a single installation. . .

"But there is still another new development which may well revolutionize all these systems. It is called the gaseous optical maser—maser standing for *m*icrowave *a*mplification by *s*timulated *e*mission of *r*adiation. This invention produces what is called coherent light . . . A single beam of light sent through a waveguide will be

able to carry millions of telephone conversations."

Another big problem of the future which seems to be solved, at least on paper, Mr. Wingert said, is expansion of international communications. "With the launching of Project Echo," he stated, "we in the United States proved that communication by satellite was possible."

In conclusion, Mr. Wingert reminded his audience that "Progress is endless. Every step forward brings you to a new beginning. And you have to take those steps."

After new products come into being, the problem of merchandising them arises. Allan R. Stacey, vice president and manager of the Sunland-Tujunga Telephone Co., Sunland, Cal., presented some thought-provoking ideas on merchandising in his speech "If You Can't Lick 'Em, Join 'Em."

Without profits, a company is unable to keep up with technical advances, and Kenneth A. Mounce, manager of the Los Angeles, Cal., office of Arthur Anderson & Co., certified public accountants, passed on some financial know-how in his talk, "Planning and Control for Profits in the Telephone Industry."

If we were living in a communist-controlled country and society, there would no longer be a need for businessmen to make any decisions on profit or anything else. All decisions would be made by the government.

Don Wrysinski, public relations director of the California Interstate Telephone Co., Victorville, Cal., recounted the reasons why his company came to the conclusion that businesses must do something to prevent our country from being overrun from within.

Mr. Wrysinski gave a case history of one phase of his company's public relations program. It began as an effort to show the dangers of internal infiltration and has turned out to be "one of the finest public relations projects we ever had," he said.

In his talk, "Let's Fight Our Own Battle," Mr. Wrysinski reminded telephone people that the communist pattern has been first infiltration . . . then coalition government . . . then the takeover.

Gradually, he stated, Americans are giving up their freedoms. He asked, "Is it because we who must fight to preserve this system are too concerned, or too busy, with our own immediate problems? . . . If free enterprise does not fight to preserve free enterprise, then who will?" How can companies fight?

First, he said, "how about spending some of your advertising money to point out the advantages of the free

Here's the NEW CALCULAGRAPH "POSITIVE GUIDE" Tab Ticket Plate*

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This is the newly developed "positive guide" tab ticket plate that provides positive protection against misalignment of tab-size toll tickets without any loss of speed. Now you can completely eliminate inaccuracies due to improper registration of the toll time. What's more, this new ticket plate is interchangeable with existing plates. This means the change can be made in the field without disrupting operations on your switchboard. And it only takes a minute or two to do — it's that easy.

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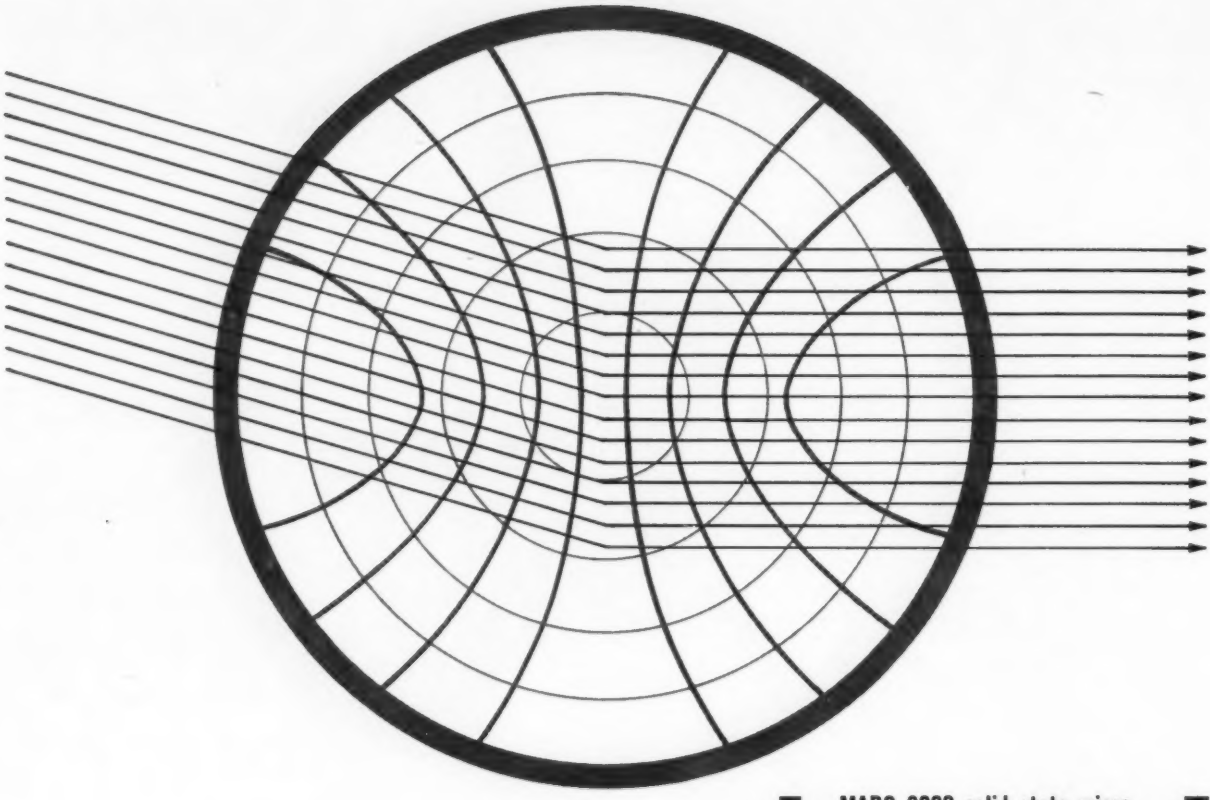


new alarm/control system insures CONTINUITY OF COMMUNICATIONS

A MARC alarm/control system, monitoring unattended microwave repeater terminals, can anticipate trouble, pinpoint its location, and initiate immediate corrective action. Among the typical alarm conditions which can be monitored are failure or degredation of RF performance, loss of signal, intruder and approach alarms, power failure, switchover to stand-by, carrier fault (major and minor), and tower light failure. Corrective action is initiated over the control channel.

Standard, off-the-shelf MARC systems are compatible with wire, radio, UHF, VHF, microwave, and carrier communications links, and may be installed without special modification to operate with all transmitters and receivers of conventional manufacture. Depending upon application requirements, MARC equipment is available for multiple-tone, TDM, and interrogation systems. "Order Wire" and other service channel functions are provided as required.

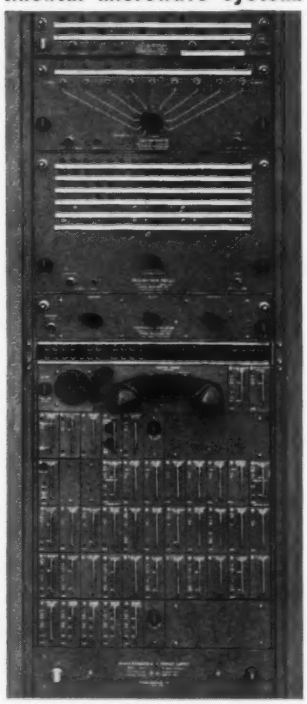
Modular, plug-in units are all-solid-state, and require virtually no maintenance. Power and space requirements are minimal; a typical repeater providing for 64 alarm functions occupies only 3½" of rack space, is powered readily from existing station voltages.

Write for current data sheets on standard MARC systems. Inquiries are invited on special systems.

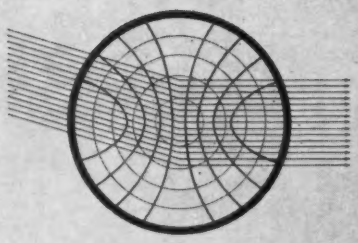
MOORE ASSOCIATES, INC.

893 American Street · San Carlos, California

MARC 3000 solid-state microwave and alarm equipment selected to monitor transcontinental microwave system.



Typical master station used by Western Union on their MLD-4B Transcontinental Microwave System.



MARC EQUIPMENT HAS BEEN PURCHASED BY THE FOLLOWING:

Western Union Telegraph Company
New York Bell Telephone Company
Hawaiian Telephone Company
Western Electric Company
Lenkurt Electric Company
Illinois Bell Telephone Company
General Telephone Company of Illinois
U. S. Air Force
Chicago and Northwestern Railroad
Atchison, Topeka, and Santa Fe Railroad
Collins Radio Company
United Telephone Company of Indiana
Raytheon Company
ITT — Kellogg
Union Oil Company
Sun Oil Company
Humble Oil Company
Edgerton, Germeshausen & Grier
American Machine and Foundry
Southern Pacific Company
Naval Ordnance Test Center
Aerojet General Corporation
David Taylor Model Basin, USN
Boeing Aircraft Company
Bristol Company
Radio Corporation of America
Frankford Arsenal, USA
Eglin Air Force Base, USAF
Computer Measurements Corporation

MARC systems purchased by the above companies operate in conjunction with standard microwave communications equipment such as that manufactured by the following:

Raytheon Company
Western Electric Company
Lenkurt Electric Company
Collins Radio Company
Motorola
Philco Corporation

enterprise system? If your company has purchased films and pamphlets for public use, why not consider more films and pamphlets that expound the virtues of the free enterprise system? . .

"Second, consider the possibility of making certain 'free enterprise material available to your own employees.' . . .

"Third, I strongly recommend that you consider the function of public relations more than just an afterthought. . . . I would have you consider public relations in a more versatile concept . . . in addition to keeping the public informed as to the company's activities in the field of communication, opportunities should be made to also expound the virtues of the free enterprise system.

"Fourth, I believe we have an obligation to be more active in the field of politics. . . "

Mr. Wrysinski then recounted what his company has done.

The California Interstate company has purchased, as part of its public relations program, the films "Operation Abolition" and "Communism on the Map."

Since November, 1960, these films have been shown, and speeches on these subjects have been given, to well over 10,000 people in the company's system. A great deal of material has been reproduced and distributed, and identified as being furnished through the courtesy of the California Interstate company.

"What did it get us?" Mr. Wryskinski asked. Time did not permit him, he said, to review the hundreds of letters received backing his company's efforts.

In addition, he stated, "We have received thousands of dollars worth of free publicity. Many editorials have been written by newspaper editors commending our efforts."

He ended his talk by stating "If YOU want to fight, the place to start is in your own conscience and in your own heart."

Also urging telephone executives to take a more active part in community affairs was a talk by A. J. Barran, president of the General Telephone Co. of the Northwest, Spokane, Wash.

He spoke on "The Telephone Executive and Public Affairs."

Among projects of the Nevada association is the compilation of a combined telephone history of the state which would contain the story of every Nevada telephone company. At the convention, booklets giving the history of several companies were passed out.

Paul R. Bond, 1961 convention chairman, who recently retired from the Bell Telephone Co. of Nevada, was given a gift in appreciation for his contributions to the association.

He was presented with a magneto telephone from Tonopah, Nev., an historic mining town, which had an inscription engraved on it.

The group elected the following directors: Ray Morgan of Gardnerville, Joseph Orchard of Reno, and Gilbert O. Thomas of Las Vegas.

Officers are: President, Howard Smith of Tonopah; vice president, Harold W. Rogers of Fallon and secretary-treasurer, Mrs. Evelyn M. Gerow of Las Vegas.

Microwave Radio Link in N. C.

Central Telephone Co., Hickory, will put into service a $385,000 microwave radio service on Nov. 19 that will tie in Elkin, N. C., with North Wilkesboro and West Jefferson, N. C. Elkin is the company's group headquarters for the area.

Revolt Vs. Welfarism

Newburgh, N.Y. may find a niche in history as one of the first American communities to revolt against the welfare state. Community leaders of Newburgh decided that people should no longer be asked to support chiselers. They are not against assistance where it is needed. . . .

Italy, Tex. suffered a disastrous tornado last spring. Immediately, federal officials offered to help establish Italy as a disaster area and secure federal assistance. The city council of Italy wired thanks and said, "Feel federal treasury in worse shape than Italy and suggest any allocation set up for Italy be applied to national debt."

What happened? Italy has recovered. The local paper has been deluged with congratulatory messages directed to all of the people of Italy, typical of which was the following:

". . . If Americans were anxious to provide for their own security rather than expecting Uncle Sam to take care of them, socialism-communism wouldn't have a chance. . ."

From New York: ". . . After so many years of brainwashing that there is nothing ignoble about accepting public handouts . . . I can only conclude that there must be something in the water that you folks drink down there."

Newburgh, N.Y. and Italy, Tex. have pointed the way back to an indomitable America. The big question is, will other communities follow their lead?—*Industrial News Review,* **September, 1961.**

Freedom Is Topic At Ohio Association District Meeting

"Fit for Freedom" was the topic of an address delivered on Oct. 24 by Dr. Floyd Faust, pastor, Broad Street Christian Church, Columbus, to a meeting of over 200 Ohio Independent telephone company management personnel and their guests at Avon Lake. This meeting is one of a series of six the Ohio Independent Telephone Association is holding this fall throughout the state.

Discussing one of the most critical needs of Americans today, the need for discipline of fiber, moral fitness, mental alertness, and personal responsibility, Dr. Faust hit hard at the need to be a better American and a better person.

"Has it occurred to you what will happen in our nation when by reason of moral and spiritual decay, a large percentage of our people become unfit for freedom?" Dr. Faust inquired. "We Americans have demonstrated repeatedly that we can fight for freedom," he reminded the group. "Now we face the supreme test". . . . that we are fit for freedom.

Weldon W. Case, Elyria, member of the board of directors of the Ohio Independent Telephone Association reported on "Ohio's Dynamic Independent Telephone Industry." Mr. Case is president of the Mid-Continent Telephone Corp.

Pictured as they attended one of a series of meetings being sponsored by the Ohio Independent Telephone Association are, left to right: John Bobel, president of the Lorain (O.) Chamber of Commerce; Daniel W. DeHayes, OITA executive vice president; Dr. Floyd Faust, pastor, Broad Street Christian Church, Columbus, O., who addressed the meeting, and Robert Trinter, treasurer of the Lorain Telephone Co. and district chairman for the meeting.

Daniel W. DeHayes, executive vice president of the Ohio association, served as toastmaster for the evening.

Robert Trinter of the Lorain Telephone Co. was district chairman for the meeting.

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FOR DIRECT EARTH BURIAL INSTALLATION.
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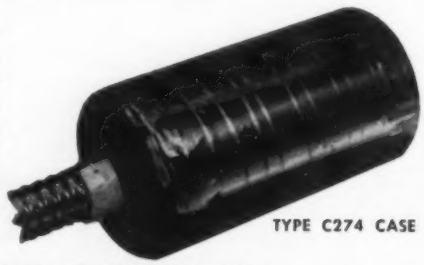
These assemblies can be equipped with loading coils, capacitors, inductors and MF units.

NOTE: These assemblies are completely covered with plastic tape to protect all metal from electrolysis and other soil corrosive agents.



TYPE C274 CASE

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- **PLASTIC STUB ASSEMBLIES ARE SEALED IN THERMOPLASTIC COMPOUND TO INSURE PROTECTION FROM MOISTURE.**

Write us for assistance on your loading problems.
Ceeco assemblies are sold by your telephone equipment supplier.

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New Bell Data Sets Double Machine Transmission Speed

The Bell Telephone System has developed new data sets with the capacity for transmitting information from business machines over telephone lines at speeds up to 2,400 bits per second, the equivalent of 3,000 words per minute. This is twice the speed of data sets currently available, the Bell System states.

Two models of the new voice band serial data sets are planned. The 201A is designed for Data-Phone service over the regular message telephone network at a fixed speed of 2,000 bits per second, the equivalent of 2,500 words per minute in eight-channel code. This data set may also be used on private line networks or alternately with Data-Phone and private line services.

The new 201B data set operates on point-to-point private line facilities at a fixed speed of 2,400 bits per second, said to be twice the present speed previously possible.

Speed increase is made possible through use of a new phase modulation-demodulation technique which permits the transmission of a bit each second per cycle of bandwidth.

The Data-Phone 201A data set is now in production and will be available early in 1962.

Compatibility tests are now being completed by various business machine manufacturers offering a wide variety of punched card, punched tape and magnetic tape equipment.

Pre-production models of the new data sets are being used on private line trials for the Social Security Agency between San Francisco, Cal. and Kansas City, Mo. using magnetic tape terminals. They are also being used by the Prudential Life Insurance Co. on a trial between Boston, Mass. and Newark, N. J. In addition, consulting agencies for the military have been running evaluation tests with the new four-phase data sets.

Other pre-production models of the 201B data sets will be installed in several test trials to obtain the reaction of business machine designers to additional features under development.

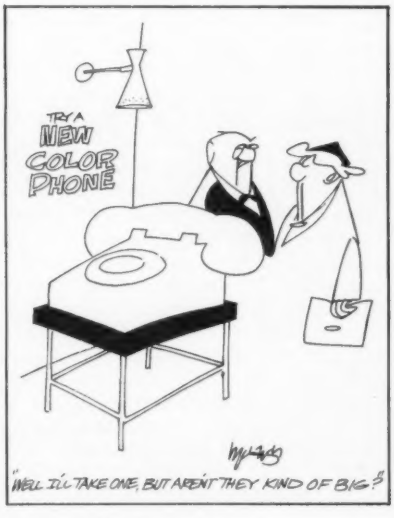
Both of the new data sets function on a synchronous basis. Set options will permit operation under the control of an internal clock or an external clock provided in the associated business machine equipment.

Gets Management Award

Frederick G. Macarow, executive vice president and director of the Chesapeake & Potomac Telephone Cos., has been given an award by the Society for Advancement of Management. The presentation was made for leadership in "demonstrating sound application of scientific and advanced management principles."

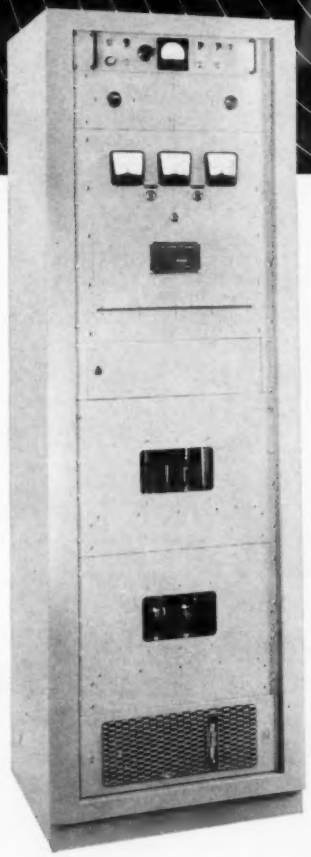
Enjoyment in Depth

"Finally, education alone can conduct us to that enjoyment which is, at once, best in quality, and infinite in quantity."—HORACE MANN.



A Stronger Heart for Your Paging and Signaling System

NEW BUDELMAN TRANSMITTER
Type B-250-VA4



Built for Years of Round-the-Clock Continuous Duty Service

With over 40 now in use as Bell System Radio base stations, these 25-50 mc central office transmitters deliver MAXIMUM SIGNAL COVERAGE in 1-way voice radio paging or tone signaling, because of their 250-watt carrier power and 100% modulation (for peak power of 1000 watts.) Over-modulation is prevented and sideband radiation, suppressed through the use of feedback, speech clipper and low-pass audio filter.

Designed well above FCC requirements, reliability and frequency stability are assured. Highest grade components are operated greatly below continuous duty ratings. Advanced engineering provides high efficiency and negligible spurious radiation.

Transmitted information may be broadcast for interception by voice paging or tone signaling subscribers. Local or remote control operation.

Increase the return on your investment dollar. Write for complete specifications

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Plant Man's QUIZ

BY RAY BLAIN, TECHNICAL EDITOR

Q. Can you advise us whether a weather-proof telephone is now available for use outdoors, or on a patio? Often, a conventional type telephone which is forgotten on a patio will be ruined by a sudden shower.

A. Perhaps the best arrangement is to make use of a plastic cover that can be used to protect the patio telephone during wet or stormy weather. This cover may also be locked, if desired, to prevent unauthorized use of the telephone.

•

Q. What is considered the best method to locate numerous leaks in an old, lead-sheathed aerial cable?

A. One method that has been used for the past several years with considerable success is the "Bubble Bath." With this system, gas or dry air is used to pressurize a section of cable to be tested. The pressure should be applied at a rate of not more than six pounds per square inch at the regulator. With this method, it is necessary that a pressure of at least one-half p.s.i. be provided at all points within the section. In order to provide this pressure, it may be necessary to repair some of the larger leaks in the sheath.

A special fluid is then used to make up the "bubble bath." Special equipment is available that can be pulled along the aerial cable to spray the entire outer surface of the sheath. The method of observing for leaks is most important. Small leaks will continue to form a white foam for some time, which collects at the bottom of the cable and is readily visible from the ground.

Larger leaks provide similar tell-tale evidence, except that the collection has larger bubbles resembling a bunch of grapes. Large leaks may also blow through the solution and leave no tell-tale deposit and can be observed only when the fluid stream of the bubble bath is flowing directly on the leak. This will be found particularly true when the leak is near a feed point and the cable pressure is relatively high.

The cable should be observed continuously as the fluid is applied throughout the span. The tell-tale deposits are sometimes slow in forming when the pressure is low or the leak small; but once formed, they will remain on the cable from 15 to 30 minutes.

•

Q. Will it prove desirable for a small Independent company to promote the installation of key-type telephones for subscriber use?

A. Key-type telephones are designed primarily for use with two or more central office lines so that any telephone in the group can *answer* any line and *use* any line for originating calls. Intercommunication service between stations and other special features can be provided, but are somewhat limited. Key sets are sometimes used in lieu of small PBX systems for small business concerns that require more than one main line telephone.

It is our opinion that a small Independent company should promote the sale of key sets if it is determined that this service best meets the subscriber's needs.

•

Q. What method is recommended to prevent small lashed aerial cables from dancing in a high wind?

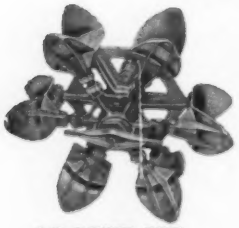
A. One method that has been rather extensively and successfully used to prevent cable dancing is to twist the cable and its supporting strand. This is accomplished by first removing the suspension clamp from the through bolt at alternate poles so as to permit the cable to swing free. Then, place a suspension bolt in the center hole of the suspension clamp and, using the bolt as a lever, twist the cable and the strand until the length of the spirals in the shorter span is about 20 feet. The twist should always be made so that the cable will bear toward the pole.

It must be remembered, however, that this method is recommended for use only with cable that is attached to the strand by the spinner method.

(Continued on page 64)

GENERAL MACHINE PRODUCTS COMPANY, INC.

Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.



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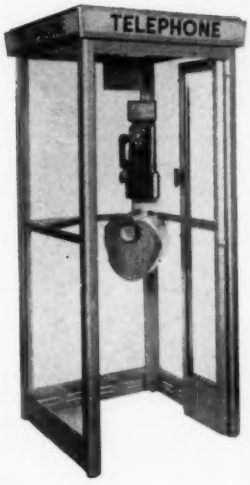

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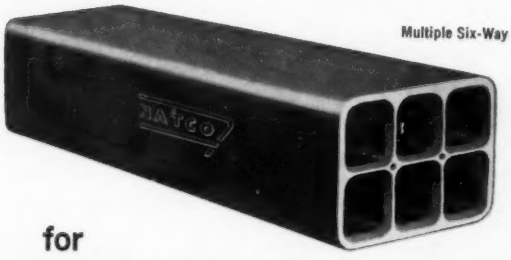

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PERMANENT PROTECTION OF UNDERGROUND CABLE

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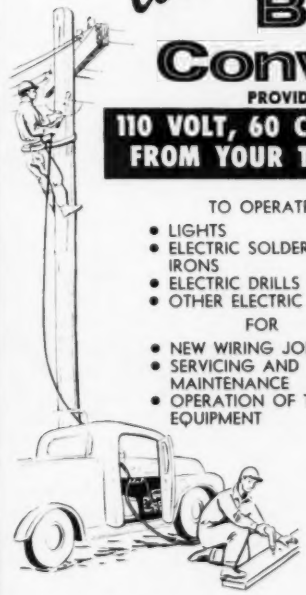
110 VOLT, 60 CYCLE A.C. POWER FROM YOUR TRUCK BATTERY



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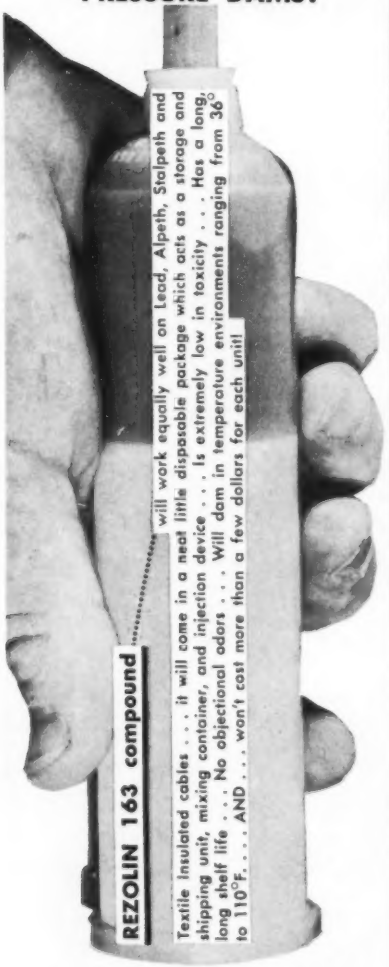
PRESSURE DAMS?


REZOLIN 163 compound
will work equally well on Lead, Alpeth, Stalpeth and
Textile insulated cables . . . it will come in a neat little disposable package which acts as a storage and
shipping unit, mixing container, and injection device . . . Is extremely low in toxicity . . . Has a long,
long shelf life . . . No objectional odors . . . Will dam in temperature environments ranging from 36°
to 110°F. . . . AND . . . won't cost more than a few dollars for each unit!

• Write for Illustrated Brochure

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EXbrook 5-3296

Q. Is it possible to obtain a small light-weight amplifier for use with an exploring coil to locate aerial cable trouble? Also, will an amplifier really prove useful?

A. A recently developed transistorized amplifier which operates on four penlight cells is now on the market. This amplifier increases the exploring coil signal more than 200 times, and with batteries weighs only 10 ounces.

The amplifier certainly does prove useful. Most standard cable testers are designed so that the signal strength adjacent to the sheath of a cable is approximately .003 volts. This signal is difficult to hear, especially on windy days, in noisy locations, or when the fault is of low resistance. Increasing the signal strength causes carryover beyond the actual trouble and indirectly causes noise on adjacent pairs. This difficulty can be prevented by simply amplifying the pick-up coil signal to a point where it is many times as powerful as the actual signal emanation from the cable itself.

•

Q. Will it be possible to use powder-actuated tools to drive studs into concrete without endangering workmen? In other words, are these tools considered safe at the present time?

A. In our opinion, these tools are safe if ordinary precautions are observed in their use. One tool of this type now on the market transmits power directly to a plunger which is then moved at a relatively slow speed. This action actually pushes the stud into the concrete. The stud automatically stops when the plunger discontinues pushing it.

•

Q. What is the meaning of the term "even-count" cables?

A. Cables of 25-pair and larger, are made in even multiples of 25 pairs, i.e.: 50, 75, 100, 150, 200, etc. In the old days, cable manufacturers placed extra pairs in cables so that they could guarantee a certain number of pairs. Present-day methods have improved to such an extent that manufacturers can guarantee a certain number of pairs without resorting to the use of extra pairs.

Thrift Triumphs

"If you want to know whether you are destined to be a success or a failure in life, you can easily find out. The test is simple and infallible. Are you able to save money? If not, drop out. You will lose."—JAMES J. HILL.

COVER PHOTO

To be called a "Good Soldier" is the highest tribute that can be paid a military man. And, White Sands Missile Range, N. M., has some "Good Soldiers", Army officials say.

Among them is a much decorated non-commissioned officer of some 18 years active duty who is inspector with Lower Range Communications. He is Sp5 John A. Raab of Headquarters and Headquarters Co., Signal Missile Support Agency.

National security, and development of the nation's missile programs, depend much upon communications. In turn, effectiveness of the intricate and diverse communication systems rests upon highly skilled maintenance technicians such as Specialist Raab.

The outstanding Army Rocketeer is responsible for the working order of some 700 miles of transmission cable and pole lines that lace the south portion of the missile range. These lines are for communication equipment of various types, from ordinary telephones and teletypes to special missile data instruments.

It is a 24-hour-a-day job, and involves riding endless miles over desert roads in checking cables and wires.

Specialist Raab served in the European Theater during World War II and in Korea during 1946. Then he was stationed in Japan in 1949, in Korea during 1950, and back in Germany in 1955. He was awarded the Purple Heart during the Korean War. He also holds the World War II Victory Medal, European-African-Middle East Campaign Medal with Three Bronze Stars, the Occupation Medal-Germany, Occupation Medal-Japan, National Defense Medal, Korean Service Medal with Silver Star and Three Bronze Stars, U. N. Service Medal, American Campaign Medal and Good Conduct Medal.

Raab, a native of New York, entered the Army in 1943; attended communications cable and pole-line construction schools in 1949 and, while in Germany, attended a technical school for German equipment.

ABC OF THE TELEPHONE

Continued from page 24

using a torque wrench and retest the joint. The manifold gaskets will have to be replaced if this does not correct the condition.

Choke Mechanism

Excessive fuel consumption will result if the choke mechanism is out of adjustment. Economy maintenance procedure for manual choke:

- Remove carburetor air cleaner.
- Push choke control button all the way in on dash panel.
- The butterfly choke valve in the carburetor should be in a wide open position. If not, examine the choke control mechanism and correct the condition preventing the butterfly from opening.
- Check that the choke control or butterfly valve does not tend to bind or stick in any position. Use thinner or an approved solvent to clean the assembly if gummy or covered with grease and dirt.

Economy maintenance procedure for automatic choke is:

- Observe how the choke mechanism operates. The carburetor butterfly valve should be closed when the engine is cold. The mechanism should open the butterfly as the engine warms up to operating temperature. Little can be done to repair an automatic choke unit other than correcting obvious mechanical defects. If all parts and controls appear to be in good order and the choke still does not operate satisfactorily, replace the entire unit.
- Warm up the engine and turn the idle control adjustment one way or the other to check the idle mechanism. This is working if the engine speed varies. The idle features of the carburetor are in need of reconditioning if nothing happens to the engine speed.

Accelerator Pump

A defective accelerator pump quite often may be the cause of sluggish pick-up, engine coughing, or lack of power. To check the accelerator pump:

- Remove the carburetor air cleaner.
- Open and close the throttle with a snapping action, like gunning the engine. Look downward into the carburetor. A solid stream of fuel from the accelerator pump is a good sign the pump is working properly. A weak stream of fuel or fuel just barely flowing from the jet indicates the accelerator pump assembly should be reconditioned or replaced.
- The accelerator pump may have a means of compensating for seasonal weather conditions. The stroke of the pump should be shortened for summer operating conditions. The assembly can be changed to provide a longer stroke of the pump to supply the carburetor with a richer mixture for cold weather service.

Fuel Level

The fuel level in the carburetor can be checked as follows:

- Remove the carburetor air cleaner.
- Start and run the engine at idle speed.
- Look down into the carburetor and observe the condition of the main nozzle. Raw fuel at the tip of the main nozzle indicates the fuel level in the float bowl is too high. This condition usually is caused by normal wear of the float needle valve and linkage assembly. The usual maintenance procedure is to bend the float arm to obtain the correct fuel level. Check the manufacturer's specifications to determine the correct fuel level for the carburetor being serviced.

Some carburetors are equipped with a fuel level sight plug. To check the fuel level on these carburetors:

- Remove the sight plug.
- Operate the engine at idle speed.
- The fuel in the bowl, in most instances, should be just high enough to wet the threads at the lower edge of the sight hole.
- Replace the plug when the check is completed.

Initial Carburetor Adjustment

The adjustment of the carburetor is probably the most misused and abused of all economy maintenance operations. The final adjustment of the carburetor should be made only after all other conditions pertaining to efficient engine operation have been checked and corrected, if necessary. Then—and only then—should the carburetor be adjusted. Adjusting the carburetor to compensate for poor compression or faulty ignition will only result in a loss in over-all performance and excessive fuel consumption.

Always refer to the manufacturer's specifications for information pertaining to the adjustment of a particular carburetor. In most instances, an initial setting of the idle needle valve(s) is made first. The following is based on a carburetor equipped with two idle needle valves:

- With engine stopped, turn both needle valves in (clockwise) until they seat lightly. Do not force the valve against the seat. Forcing will damage

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the valves and seats and will not serve any useful purpose.

- Turn both valves out (counterclockwise) the specified number of turns. Generally, this will be somewhere between one and two turns. The important point is to be sure both valves are turned the same number of turns.
- If the carburetor has a fast idle adjustment, back off the throttle stop screw until the throttle valves are closed completely.
- Make sure the choke is set in the wide open position.
- Turn the throttle stop screw in until the screw tip touches the associated contacting surface.
- Turn the throttle stop screw in one complete turn.

When these adjustments are completed, the engine should start and warm up efficiently without stalling.

The initial adjustment of the idle needle valves must be changed to compensate for air temperature, fuel octane rating, and over-all condition of the engine. The setting of the throttle stop screw must be changed so as to maintain the desired engine speed as the idle adjustment valves are turned in to make the mixture leaner or turned out to make the mixture richer.

Final Carburetor Adjustment

Too much emphasis cannot be placed on the advantage of using precision test equipment and procedures in making final carburetor adjustments. This is the only way the mechanic can be sure the carburetor is being adjusted for best operating efficiency. Perhaps the best way to be sure of a correct carburetor adjustment is to use both a reliable exhaust gas analyzer and a tachometer.

Fig. 4

Fig. 5

The exhaust gas analyzer measures the over-all efficiency of the engine as a combustion unit. The engine is getting the most power out of the fuel consumed at the point where the best combustion occurs. The readings provided by the gas analyzer tell the mechanic how certain adjustments affect the efficiency of the engine.

The tachometer readings provide an accurate indication of the engine speed. For example, an exhaust gas analyzer instruction may specify making a reading at 2,000 rpm engine speed. This speed can be determined precisely with a tachometer. A typical, inexpensive tachometer is shown in *Fig. 4*. A tachometer may also be included as an integral unit on an engine tester.

Exhaust Gas Analysis: To make an exhaust gas analysis the following steps are taken:

(1) Connect the exhaust gas analyzer and tachometer as covered in the manufacturer's instructions.

(2) Start and run engine at idle speed. Both instruments should indicate a steady idle reading. The idle and low speed feature of the carburetor is not functioning properly if a steady idle reading cannot be obtained by adjusting the idle control needle valves.

(3) Gradually increase the engine speed to 2,000 rpm. The exhaust gas analyzer reading should be within the high speed scale on the meter.

(4) Remove the carburetor air cleaner. A restriction in the air cleaner is indicated if removal of the air cleaner causes the analyzer reading to move towards the lean area of the scale, as illustrated in *Fig. 5*.

(5) The high speed feature of the carburetor is not working properly if the reading is above or below the

hign speed range on the meter. This is an indication the carburetor should be removed for complete cleaning and overhaul or replacement.

(6) Return engine to idle speed. The analyzer meter needle should return to the idle zone on the scale.

(7) Open throttle very rapidly and return at once to the closed position. The analyzer meter needle should make a definite move towards the rich division of the scale. This indicates correct functioning of the accelerator pump system on quick acceleration. The accelerator pump system is not working properly if the meter needle moves towards the lean zone and does not move towards the rich zone on the scale.

In using a tachometer alone:

(1) Connect the tachometer in accordance with the manufacturer's instructions.

(2) Start and run engine until temperature is normal. Then run at idle speed.

(3) Adjust throttle stop screw for correct idle speed.

(4) Turn both needle valves in equally until tachometer needle drops back slightly.

(5) Turn both needle valves out equally until the highest tachometer reading is attained.

(6) Adjust the throttle stop screw for correct engine idle speed.

A vacuum gauge connected into the intake manifold vacuum line can be used in place of the tachometer to check the idle adjustment. The carburetor idle needle valves are adjusted to obtain the highest vacuum reading.

Usually a carburetor should be set towards the rich side for cold weather operation. This setting can be determined easily when an exhaust gas analyzer is used. The idle needle valves should be opened slightly to cause the vacuum gauge or tachometer meter needle to drop back slightly from their highest readings.

As mentioned previously, efficient

Answers To Questions On Page 54

(1) She should say, "Wrong Route." If the operator does not disconnect or acknowledge, she should add, "Please check your routing directions."

(2) She should say, "I'm sorry, will you give that call to your operator, please?"

(3) She asks, "Are you the operator?"

(4) She should say, "What is your office, please?"

(5) If she is still doubtful, she should refer the case to her chief operator.

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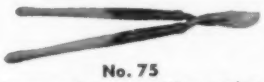

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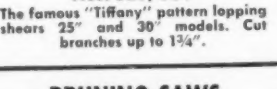

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gasoline engine operation depends upon three basic factors—fuel, compression, and spark. Emphasis, so far, has been on providing the correct fuel-air mixture to the intake manifold. The next article in the ABC Series will discuss the various elements involved in providing correct compression for most efficient engine operation and for peak performance.

(To be continued.)

NATION'S CAPITAL

Concluded from page 19

ing to Senator Long, "it does just the opposite."

Senator Long outlined three proposals that he hoped the FCC would study among others before making a final decision:

(1) The substance of the report of the "Ad Hoc Carrier Committee" report, which Senator Long criticized as being almost completely parallel to the carriers' profit interests, without regard to the public interest.

(2) The government placing the communications satellite in operation and then selling it to a private enterprise which would be under the close surveillance of federal and state regulating agencies.

(3) The government lending money to private concerns to set up the system. The senator likened this to the operation of the Rural Electrification Administration and the government-created competition in the aluminum industry during World War II.

Your Washington columnist sat in the hearing room listening to Harvard-trained Staff Economist Benjamin Gordon's barbs at witnesses reflecting a not-so-dormant anti-business philosophy. The readers may recall last week's installment of *In The Nation's Capital*, in which it was said, in part:

"Since students are being exposed to a liberal philosophy, it is not surprising that, when they take their places in the world, they think, act and vote in conformity with the liberalism which was infused into them during their school days. Many products of this training now find themselves in responsible positions in government where their prejudiced view toward our free enterprise system colors all their actions.

"It is interesting to speculate about how many of Arthur Schlesinger's former students at Harvard now hold key posts with the Kennedy administration."

Knowledge That Works

"True scholarship consists in knowing not what things exist, but what they mean; it is not memory but judgment."—JAMES RUSSELL LOWELL.

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TEMPLETON, KENLY & COMPANY

Canadian Company Sold To Northern Telephone Ltd.

All outstanding shares of Telephone Chibougamau Ltee. have been purchased by Northern Telephone Ltd., New Liskeard, Ont., Canada. These shares were previously held by Campbell Chibougamau Mines Ltd. and the Antoine Dubuc family.

Don McKelvie, president of the Northern company, said that Mr. Dubuc will continue to be associated with the purchased company.

The acquired company serves the Chibougamau area which has three producing copper-gold mines.

Wilson Rubber Co. Elects Yacos Vice President

John Yacos Jr. has been elected vice president and general manager, and a director of The Wilson Rubber Co., Canton, O., manufacturer of linemen's rubber gloves.

JOHN YACOS JR.

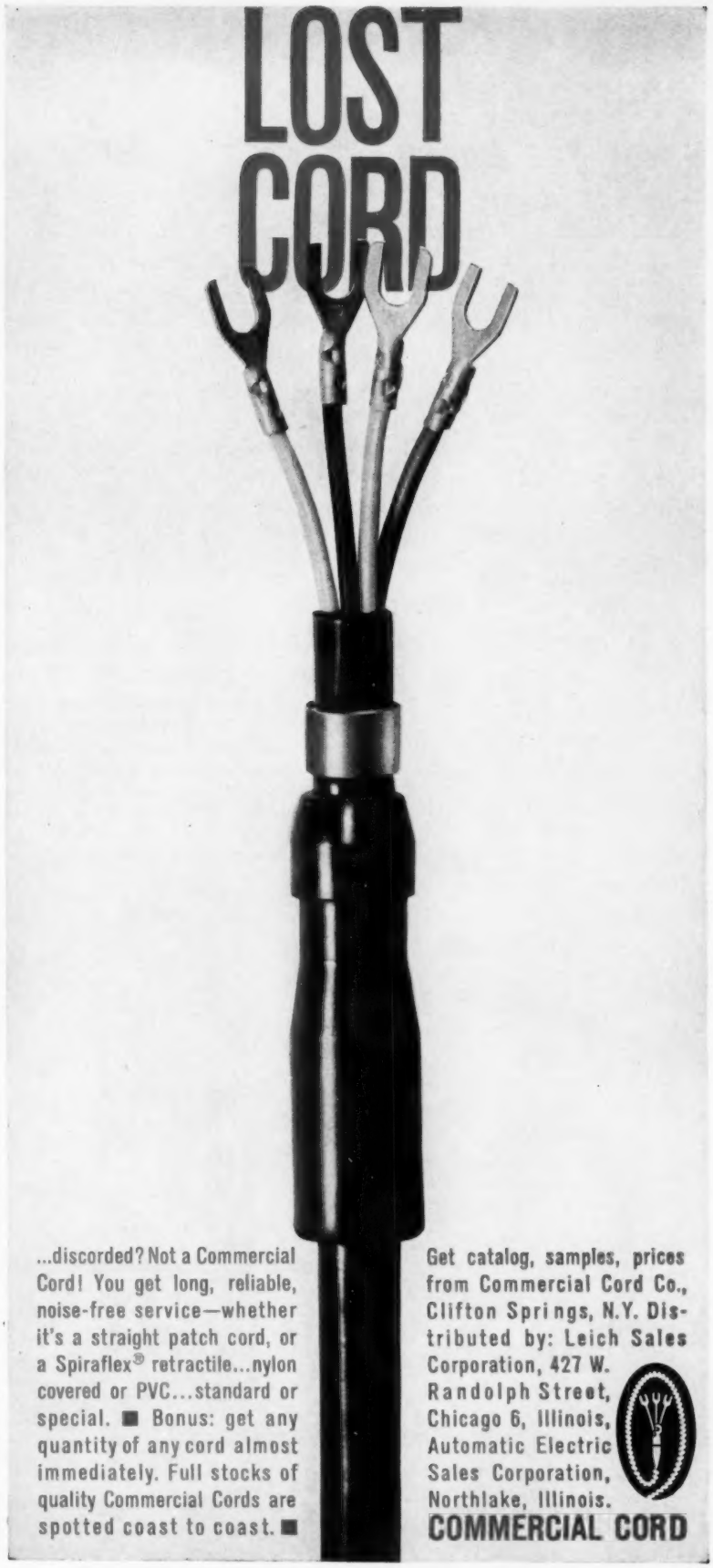
The Wilson Rubber Co. is a wholly owned subsidiary of Becton, Dickinson & Co., Rutherford, N. J.

Mr. Yacos' election to The Wilson Rubber Co.'s board of directors, and promotion to vice president was announced by John W. Simmons, executive vice president and chief of operations, and president of The Wilson Rubber Co.

This is the second promotion for Mr. Yacos within the year. He was appointed general manager in charge of operations in January, when Mr. Simmons rejoined the New Jersey home office as executive vice president of Becton, Dickinson & Co.

With a background in research chemistry and plant management, he has been responsible for all the company's operations.

Mr. Yacos joined the company in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1957 from the Battelle Memorial Institute, Columbus, O., where he was engaged in chemical research projects.

At The Wilson Rubber Co., he first served on the technical staff. He later was named plant manager, a position he held until appointed general manager.

A native of Weirton, W. Va., he holds a bachelor of science degree from Ohio State University, and a master's degree from the University of Pittsburgh.

He is affiliated with the American Chemical Society, American Society for Testing Materials, and the Akron, O., Rubber Group.

Visit Via TV, Telephone

Patients under treatment at a Salem, Mass. hospital are able to get around the usual rule that children are not allowed as visitors. A new system makes it possible for youngsters to talk to mom or dad by telephone and television. A picture of the child is piped into the parent's room.

Anaconda Wire & Cable Names Dunham for Utilities Div.

The Anaconda Wire & Cable Co. has established a Utility Products Division, with Austin W. Dunham as manager. The announcement was made by J. L. Tindale, vice president—marketing and sales. The new division will be responsible for the marketing of Anaconda's line of utility products.

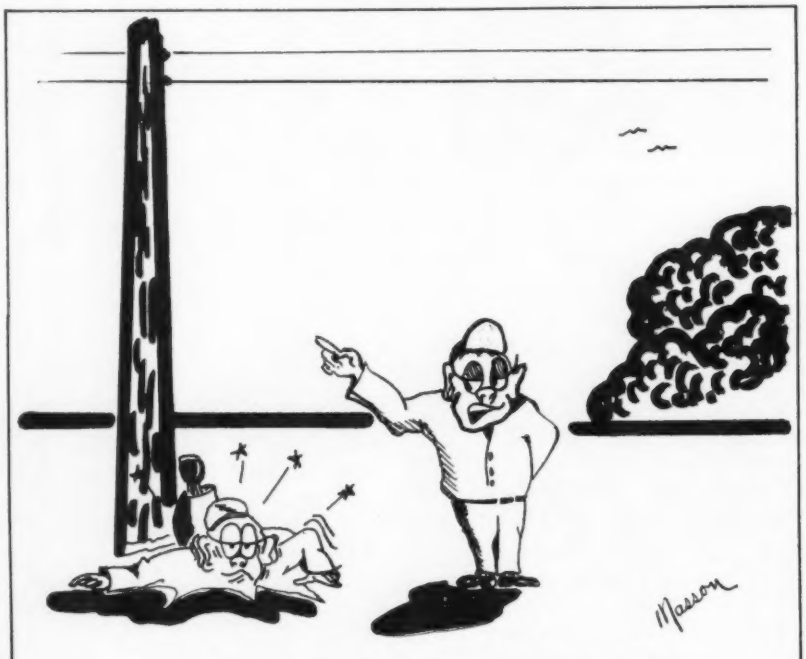
A. W. DUNHAM

Mr. Dunham has been manager of utility sales since 1960. He joined the company in 1932 and has worked principally in sales capacities since that time. He was district sales manager in Denver, Cleveland and Detroit before moving to the New York headquarters sales offices.

While in Detroit, he served as president and a member of the board of governors of the Electrical Association of Detroit.

Bloom Has Faded

"At a certain age, some people's minds close up. They live on their intellectual fat."—W. L. PHELPS.



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Radue Joins Lynch as Applications Engineer

Paul F. Radue has joined Lynch Communications Systems Inc. as an applications engineer in the Marketing Division, reporting to David Shisler, manager of application engineering. He is engaged in product planning, micro-

P. F. RADUE

wave system engineering and carrier application engineering which will involve investigating new market areas, determining customer needs and translating these into technical design parameters for new equipment.

Before joing Lynch he was planning engineer with ITT Kellogg, Chicago, for 1½ years, and prior to that he was carrier and radio staff engineer with the Automatic Electric Co. for seven years and with American Telephone & Telegraph for seven years. He has had two professional papers published.

Mr. Radue attended Wartburg College in Waverly, Ia., prior to serving in World War II as a major in the U. S. Air Force Reserve.

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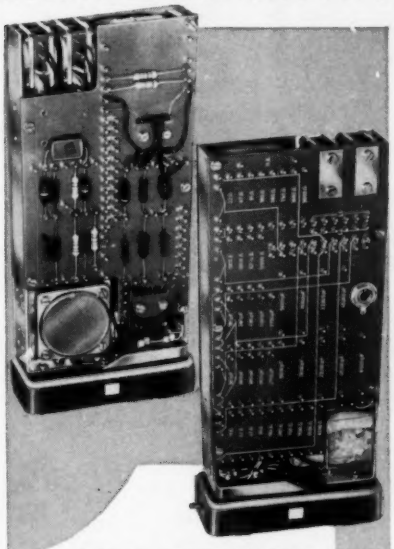

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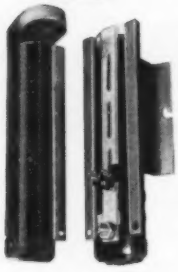

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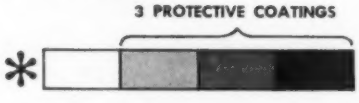

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First Electronic PBX in Service in North Carolina

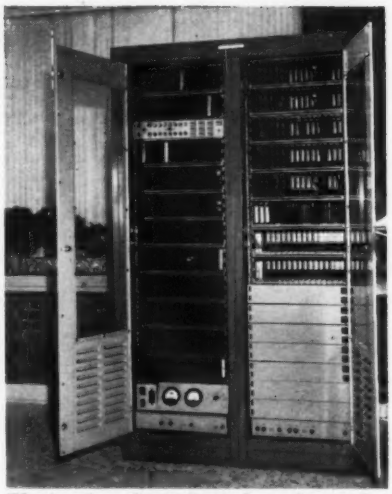
The country's first electronic private branch exchange is in full commercial use at Southern Pines, N. C. This is a production PEBX, installed for use by the United Telephone Co. of the Carolinas, Inc., a wholly-owned subsidiary of United Utilities Inc.

The Stromberg-Carlson® electronic telephone system was designed and built by General Dynamics/Telecommunication.

Recently the United Tel of the Carolinas held an informal demonstration of the electronic PBX for certain members of the telephone industry. This was followed by an open house to acquaint local citizens with United's new headquarters building, and to show the new subscriber services provided by electronics.

"We are proud," E. W. Smail, president of United Tel of the Carolinas told the group, "to be the first telephone company in the country operating an electronic private branch exchange, and to have this major role in bringing into existence the next phase of telephony—electronic switching."

Forrest Eherenman, director of information, and speaking for C. A. Scupin, president, and Paul H. Henson, executive vice president, of United Utilities, said that this installation heralds an era in which the PBX user will be able to obtain services once considered impractical in commercial practice.



Electronic private branch exchange installed at Southern Pines, N. C., for use by United Telephone Co. of the Carolinas.

Royster M. Tucker Jr. of High Point, N. C., president of the North Carolina Independent Telephone Association; L. R. Thurston, president of the United Telephone Co. of Pennsylvania; and Don Childers from the Kansas City office of United Utilities were among the industry leaders present for the demonstration.

Mr. Smail, in discussing the features of the switchboard, particularly mentioned the "Camp-on-Busy", which automatically connects an incoming

Forrest Eherenman, (left) information director for United Utilities Inc., and Ed Smail, president of United Telephone Co. of the Carolinas, Inc., watch Gerry Power, engineer for General Dynamics/Telecommunication demonstrate the attendant's turret of electronic PBX.

call to a busy extension as soon as it is free, relieving the attendant of any further duty on this call.

Bob Bishop, commercial manager, predicted great usage for the "Call Forwarding" feature, whereby a user can dial up another extension number or an off-premises number if he wishes his calls to "follow" him wherever he goes.

The Southern Pines installation also includes direct inward dialing, conference, transfer, inquiry, and executive right-of-way—all accomplished without assistance from the attendant, and using a standard telephone instrument.

DYNALOGiC (trademark of General Dynamics Corp.) electronic switching makes it possible to offer new services and to meet increasing communication demands through a system that incorporates the known advantages of electronics, according to General Dynamics. To make the transition practical the equipment is completely compatible with existing electromechanical switching equipment and requires much less space. Up to 1,000 lines can be installed in the space originally planned for a 200-line electromechanical installation, General Dynamics states.

DYNALOGiC electronic switching according to the manufacturer, takes advantage of the capabilities of ultra high speed transistors and circulating delay line storage devices to apply the principle of time division multiplexing to telephone switching. Using this technique, intervals of time, which are free and indestructible, replace components, which are costly, bulky, and of limited life. The memory system has a high access and high transfer speed.

General Dynamics/Telecommunication had previously developed a new approach to switching—a complete electronic tactical communication system—for voice and data transmission, facsimile and teletype. First in the world, it was delivered to the Armed Forces in February 1960.

DYNALOGiC electronic switching, modular in construction, can assume a free form, especially useful in meeting military space limitations, it is explained. Whatever the requirement in lines or trunks, it achieves a space advantage over other types of electromechanical switching. According to General Dynamics, it also is lighter and easier to maintain than conventional equipment. It generates no radiating interference of its own; acting as a filter, it actually reduces the effect of external interference with highspeed data transmission, it is said.

In reviewing the continuing program of electronic switching at General

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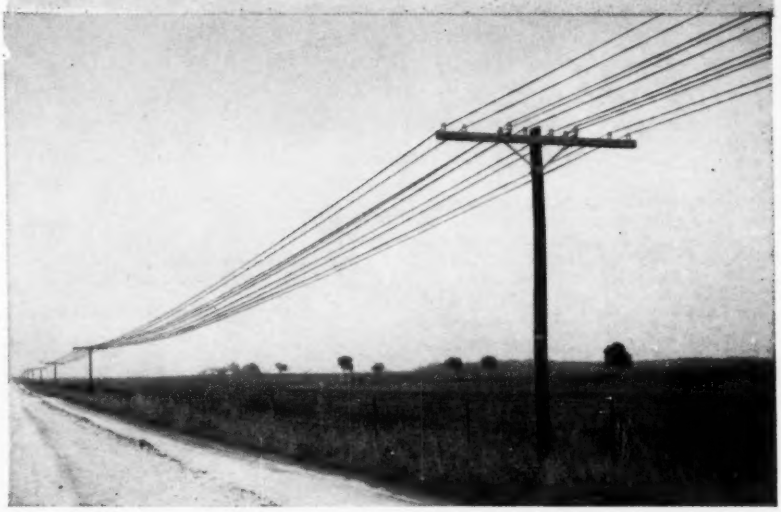
The excellent telephonic transmission characteristics of *Crapo* HTL-135 make practical subscriber loops of 14 to 15 miles with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. For dependable, long-span, low cost rural lines, specify *Crapo* HTL-135.



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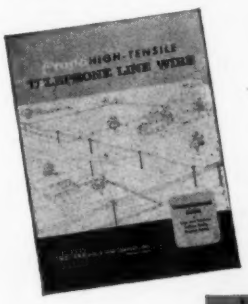

The Crapo HTL-135 in this typical rural line of 300-foot spans was subjected to two heavy ice storms within 14 months. This photo shows the line, without resagging, three months after the second storm.

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Crapo HTL-135

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Discover the full story of the OSMOSE program for groundline inspection and treatment. Write Osmose Wood Preserving Co. of America, Inc., 976 Ellicott Street, Buffalo 9, N. Y.

OSMOSE

SERVING UTILITIES SINCE 1935

Dynamics/Telecommunication, T. C. Thompson, vice president-sales, stated that the second phase—a community electronic dial office—will be cut into service early next year. According to John H. Voss, General Dynamics/Telecommunication president, this electronic CDO expands the DYNALOGiC principles into a full-scale telephone exchange. It will, for the first time, bring to an entire community the advantages of an electronic telephone system, he said.

Preformed Names Hershey to Assist in Telephone Sales

William C. Hershey has been appointed assistant to the manager of telephone product sales, at Preformed Line Products Co.

W. C. HERSHEY

A member of the sales department since 1956, Mr. Hershey started as assistant to the manager of sales service, and worked into field service work, where his present responsibilities include coordinating sales to Bell and Independent telephone systems, railroads and suppliers in an 11-state midwestern area.

He is a graduate of Fenn College.

MIDWEC BUILDING-OUT CAPACITOR STUB TYPE B

Designed exclusively for the telephone industry—used and approved by leading telephone companies.
Potting Material—Filled Epoxy Resin and Galvanized Iron Interior Shield.
Cable Type—Standard Lead
Optional, Polythylene
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Over-all Length Cable—12' Standard or to Customer Specification
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All Capacitance Values Available to 4th Decimal, from .001 to .100.
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AMERICAN CANCER SOCIETY

E. C. Blomeyer Jr. Named By Automatic Electric

E. C. Blomeyer Jr. has been appointed special assistant to Herbert F. Lello, president of Automatic Electric Co. Formerly, he was executive assistant, manufacturing division of Automatic Electric International.

E. C. Blomeyer Jr.

Born in Texas, and the son of E. C. Blomeyer Sr., one of the pioneers in the Independent telephone industry, Mr. Blomeyer studied electrical engineering at Northwestern University in Chicago where he was awarded his bachelor and master of science degrees.

He joined Automatic Electric in 1938 after serving with operating telephone companies in Missouri and Ohio.

Stockberger Machinery Named New Onan Distributor

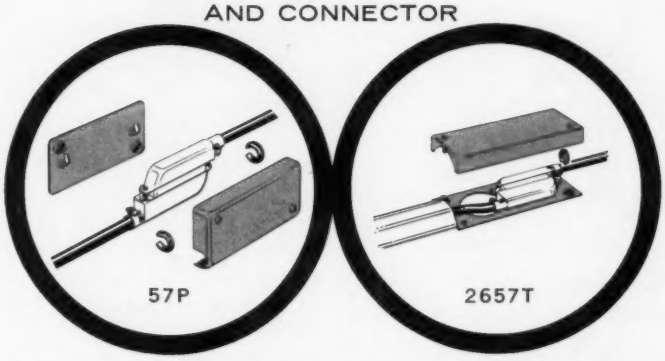
The appointment of Stockberger Machinery Inc., 630 High St., Ft. Wayne, Ind., as exclusive distributors of Onan Products was announced on Nov. 6 by Roy E. Mullin, vice president-marketing, Onan Division of Studebaker-Packard Corp., Minneapolis, Minn.

The Indiana firm will represent Onan throughout the Ft. Wayne and South Bend trading areas.

Stockberger Machinery Inc. will carry in stock a selection of Onan electric generating plants, up to and including 10,000-watt capacity, and industrial engines ranging from 7 to 40 horsepower. Larger Onan plants, up to 230,000 watts, can be ordered according to customer specifications.

The new distributor, Onan states, will also stock a complete supply of replacement parts, and is fully equipped to service and repair all Onan products.

TWO NEW FITTINGS
TO HOUSE PLUG AND CONNECTOR



For use with plug-ended multi-button telephone sets, these two new Wiremold Service Fittings are available in blue-beige, smooth enamel finish (57P), and non-glare, light gray finish (2657T). Use 57P for wall mounting; use 2657T for floor mounting with overfloor duct (1500 or 2600 Wiremold) or with underfloor duct, and for wall mounting with 4" box. Phone for data sheet 636.

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- The easiest pole handling method

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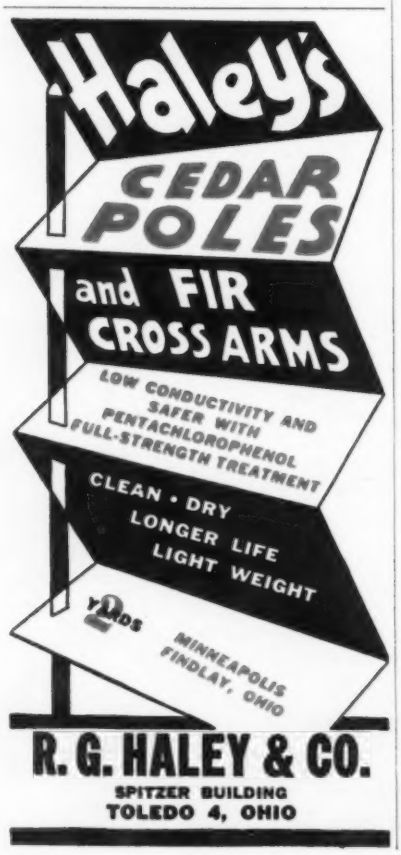

R. G. HALEY & CO.

SPITZER BUILDING

TOLEDO 4, OHIO

New teletypewriter room at Chicago police headquarters speeds messages to area headquarters and district stations. Each outlying station receives on two machines, one linked to the operational network, the other to the administrative network.

Chicago Installs Police Teletypewriter System

The Chicago police department is speeding up its emergency service with a new two million dollar communications center. On the second floor of the venerable, grey police headquarters building just outside Chicago's Loop, the modern steel and glass center is nearing completion.

The first phase, a teletypewriter switching system designed and installed by Automatic Electric Co., was recently placed in service. The system has 17 teletypewriters at the center linked to eight police areas covering the city.

The central complaint room in the new center receives emergency calls from all over Chicago. Telephone operators relay the complaints to the teletypewriter operators where they are transmitted to the proper area headquarters and selected district police stations. The telephone operators will also dispatch police cars to the emergency scene by radio, when that phase is put into operation.

Two parallel networks installed by Automatic Electric send operational and administrative messages. One network is a two-way system in which the machines both send and receive messages. The other network uses send-only machines at headquarters, with receive-only machines at area and district stations.

The eight machines in the operations network, one for each police area, transmit complaint information. A key console at the side of each machine permits the operator to select and transmit to appropriate district stations in its area.

Eight other teletypewriters in the administrative network, transmit bulletins on missing persons, wanted persons, stolen cars and routine information. The administrative system alone is expected to handle over 100,000 messages in 1962.

The 17th teletypewriter in the communications center broadcasts to all receive-only machines. The high-speed transmission machine is fed by punched tape.

An additional bank of eight teleprinters is installed in the press room at headquarters to give newspaper people on-the-spot coverage.

When the communications center is finished, only one police telephone number will be used for the whole city. District station numbers will no longer be in the telephone book. Police vehicle dispatching will be greatly improved and communication bottlenecks will be virtually eliminated.

Master of Power

"The culminating point of administration is to know well how much power, great or small, we ought to use in all circumstances."—MONTESQUIEU.

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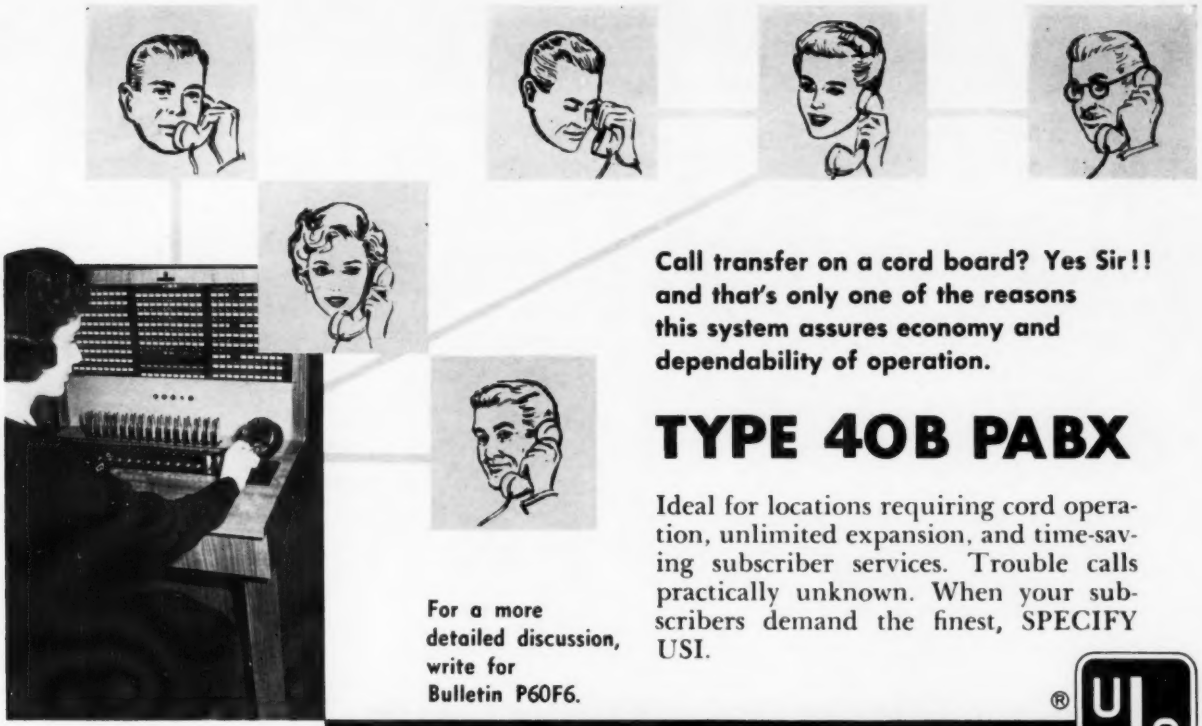

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For a more detailed discussion, write for Bulletin P60F6.

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USI CORP.

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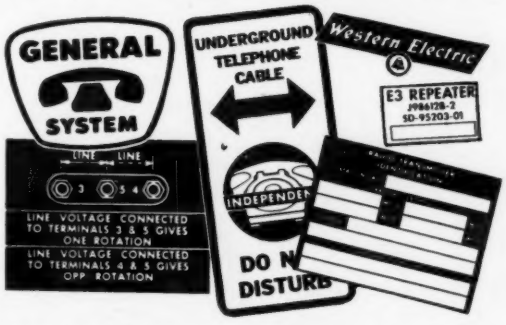
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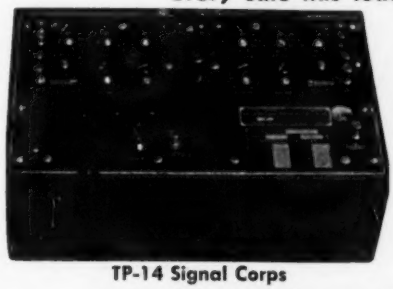

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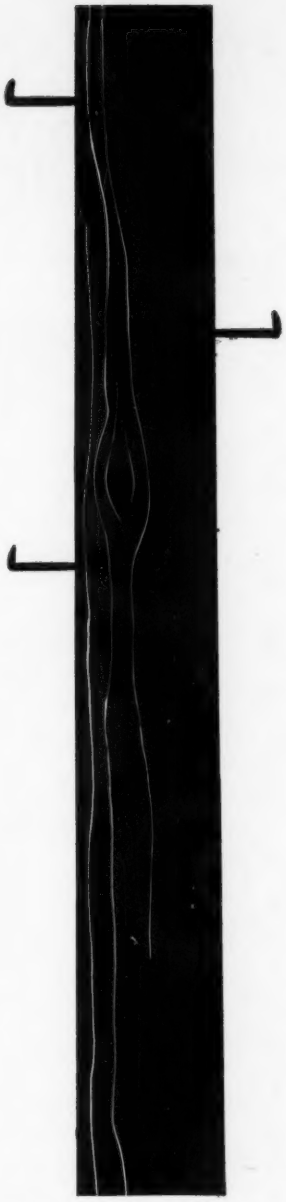

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